ELK Products, Inc.

M1 Security and Automation Controller

ASCII Protocol

RS-232 Interface Specification

Revision 1.79

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Hildebran, NC 28637 USA

Table of Contents (ASCII Commands)

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ip- M1XSP Insteon Program
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ir- M1XSP Insteon Read

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Revision History:

Rev. 0.1 - 1/13/04 – Changed Task Number ASCII reply from 2 digits to 3 digits and changed command from "R" to "T".
Rev. 0.2 – 2/17/04 – Added Keypad key pressed ASCII transmission.
Rev. 0.3 – 3/23/04 – Changed Tasks from a state on/off to a one-shot button.
Rev. 1.1 – 3/24/04 – Removed ON/OFF Task commands.
Rev. 1.2 – 3/25/04 – Added Request ASCII Names to protocol.
Rev. 1.3 – 3/29/04 – Added Request Temperatures
Rev. 1.4 – 3/30/04 – Added Keypad Key Change, word and phrase table to specification.
Rev. 1.5 – 4/15/04 – Added Read and Write Custom Values to protocol.
Rev. 1.6 – 6/07/04 – Added note about high bit of ASCII names may be set to indicate "Show On Keypad".
Rev. 1.7 – 6/15/04 – Added Request for User Code valid areas.
Rev. 1.8 – 6/28/04 – Task Change typo - Command from RC to TC, status byte set to 0.
Rev. 1.9 – 7/12/04 – Added All_Lights_On, All_Lights_Off, All_Units_Off to PLC Update for Serial Port Expander and Zensys
Rev. 1.10 – 7/16/04 – Request and return for what area a keypad is valid in, ability to activate keypad function key, ability to bypass a zone.
Rev. 1.11 – 7/19/04 – Added Request Function Key names, Request Keypad Areas, Activate Keypad function keys, bypass a zone, send arming status on keypad arm/disarm.
Rev. 1.12 – 8/4/04 – Changed Zone Temperature Probe subtract value to 60 from 40.
Rev. 1.14 - 8/6/04 – Document correction in Log Data command, changed NQ to LD. Added PLC Status example.
Rev. 1.15 – 8/20/04 – Added ASCII Thermostat control.

Rev. 1.16 – 8/24/04 – Added Thermostat Humidity support
Rev. 1.17 – 8/27/04 – Enhanced Arming Status Request, Added Zone Definition data.
Rev. 1.18 – 9/21/04 – Requesting Names, sd command, returns name whose first character is > "space" or last name in name array.
Rev. 1.19 – 10/15/04 – Added checksum C code routines.
Rev. 1.20 – 10/22/04 – PLC reply, "PS" command, replies with light level value to 48 (0x30) added to the value.
Rev.1.21 – 10/26/04 – Added '*' key to "4.21 Keypad Function Key Press", fixed task number to 3 digits in "Task Change Update".
Rev. 1.22 – 11/15/04 – Added Type of data to the Custom Values response. Implemented factory use data to Request Valid User Code Areas.
Rev. 1.23 – 12/09/04 – Corrected length of request and reply temperature data, command "st" and "ST".
Rev. 1.24 – 12/17/04 – Added command summary
Rev. 1.25 – 1/5/05 – Added email trigger, "EM", command
Rev. 1.26 – 1/11/05 – Modified "KC" command to add keypad function key LED status.
Rev. 1.27 – 1/12/05 – Corrected length of alarm reporting acknowledge from 04 to 06.
Rev. 1.28 – 1/12/05 – Corrected Alarm report acknowledge command AR to ar, added Alarm Test AR and at commands, fix Task Change Update length to 0x0A
Rev. 1.29 – 1/17/05 – Added "IE" Installer Program Mode Exited.
Rev. 1.30 – 1/31/05 – Changed "IC" Invalid User Code from 6 digits to 12 digits data for 26 bit Weigand prox card data. Added Zone Analog Voltage Data Request command.
Rev. 1.31 – 2/21/05 – Corrected Alarm Reporting packet length in description from 21 to 22 bytes.
Rev. 1.32 – 2/22/05 – Added "kc" command to request keypad F key illumination status. Returns "KC" command data.
Rev. 1.33 – 3/16/05 – Added Armed Away Mode stepping and Armed Stay Mode stepping. "a7" & "a8" commands. Added number of user code digits to "UA" command. Added "XK" and "xk" command for Ethernet Module Test.
Rev. 1.34 – 3/17/05 – Fixed "Reply Thermostat Data (TR)" description. Added automatic temperature updates on change. Version 4.2.8
Rev. 1.35 – 3/24/05 – Added byte to indicate if code required to bypass in the "KC" command.
Rev. 1.36 – 4/28/05 – Fixed error in length of Custom Value Reply. Version 4.3.1
Rev. 1.37 – 5/2/05 – "SD" command, explain the search for names to be returned. Explained dims, brights, and preset dim in "pc" command.
Rev. 1.38 – 5/11/05 – "RR" command to request and write real time clock data added to protocol.
Rev. 1.39 – 5/12/05 - Added if in Daylight Savings Time Mode to "RR" command. Added 'C' character to "kf" command to control chime.
Rev. 1.40 – 5/20/05 Changed "IC" command so that valid user code number is broadcast.
Rev. 1.41 – 5/23/05 Fixed "pf" documentation's example code.
Rev. 1.42 – 5/26/05 Added Real Time Clock time data to "XK" command and corrected response in document.
Rev. 1.43 – 6/2/05 Documented the "RP" command which is sent from XEP upon ELK RP connection. Added clock and date display mode to the "XK" command. Added Chime Mode status to "KF" command

Rev. 1.44 – 6/7/05 Added the "ld", request log data command and added the index number to the "LD" log data command.
Rev. 1.45 – 6/10/05 Added day of week and year to "LD" log data reply.
Rev. 1.46 - 6/16/05 Added Keypad Number to "IC" command. Added Event Table.
Rev. 1.47 – 6/30/05 Added lw and LW command to request temperature sensor and keypad temperature.
Rev. 1.48 – 7/12/05 Added M1SDK software documentation.
Rev. 1.49 – 8/15/05 Corrected length of "ZC" example. Added "cp" command to request all custom values.
Rev. 1.50 – 8/22/05 Added user code type to "UA" reply. Added "RE" Command to reset Ethernet Module. Ver. 4.3.7
Rev. 1.51 – 12/5/05 Added "ds" and "DS" for lighting device poll. This command is only used by the M1XSP Serial Port Expander. Added "cu", "CU" change user code.
Rev. 1.52 – 12/9/05 Added 'F' or 'C' to UA command for Fahrenheit or Celcius temperature mode. Added "az" and "AZ" alarm by zone commands
Rev. 1.53 – 12/22/05 Added ability to program what areas the user code is valid in on the "CU" command.
Rev. 1.54 – 2/03/06 Add response on "cu" command that if code to be programmed is a duplicate and denied, the returned user code is 255.
Rev. 1.55 – 3/03/06 Documented softbypass in ZS command.
Rev. 1.56 – 3/21/06 Added Entrance and Exit time to AS command.
Rev. 1.57 – 5/26/06 Added M1XSP remote programming for Insteon Setup.
Rev. 1.58 – 6/1/06 Changed number of packets from 9 to 8 on Insteon Setup. Added Null Modem.
Rev. 1.59 – 6/5/06 Added RP documentation.
Rev 1.60 – 10/26/06 Corrected "IC" command user numbers
Rev.1.61 – 07/02/07 Correct number of user names of reading user names from 99 to 199. Added "le" command to force log entry for dialer reporting. M1 version 4.1.2 and 5.1.2 or later.
Rev. 1.6.2 – 08/21/07 Added "SS" command to poll for system troubles.
Rev. 1.6.3 – 08/24/07 Added code restriction disable/enable to the "cu" command.
Rev. 1.6.5 – 11/27/07 – "ZC" documentation clarification.
Rev. 1.6.6 – 12/12/2007 – "SS" further explained fire trouble zone decode.
Rev. 1.6.7 – 3/19/2008 – Fixed documentation error in the "AZ" command.
Rev. 1.6.8 – 5/2/2008 – Added in "ts" ASCII thermostat command the ability to set the thermostat temperature from a controller with a thermostat connected to it.
Rev. 1.6.9 – 5/6/2008 – Added "CV", "cv", "cx" command to read and write counter values.
Rev. 1.70 – 6/20/2008 – Fixed documentation error on "CR" command using the "NN" value.
Rev. 1.71 – 10/10/2008 - Added "Interpreting M1/EZ8 Event Log Extended Information".
Rev. 1.72 – 10/27/2008 – Added "AP" commands to send ASCII strings to outside IP address. Added "CD" commands to control audio equipment. Remapped document by commands.
Rev. 1.73 – 10/29/2008 – Corrected "Interpreting M1/EZ8 Event Log Extended Information" involving extended function key code from 500 to 400 range.
Rev. 1.74 – 11/06/2008 – Added Omnistat 2 documentation, added SD commands 18 & 19, EE command, CA command. VN version number. Version 5.1.12 or later
Rev. 1.75 – 11/14/2008 – Modified the CA and CD commands.

Rev. 1.76 - 4/21/2009 – Modified XK description.
Rev. 1.77 – 5/04/2009 – Modified EE command to add Armed State to command string.
Rev. 1.78 – 7/08/2009 – Removed ASCII audio commands (CD) and use numbers in command strings
Rev. 1.79 – 7/16/2009 – Explained the SS command of extracting zone troubles from string.

1. General

This document describes the protocol specifications for the ELK M1 Security and Automation Controller's RS232 serial interface port and related controls including the ELK EZ8 Control. This port allows communications between the M1 and various 'third party' devices such as computers, lighting, HVAC, and many types of automation devices on a real-time basis.

Connection to the port is via a 9-pin "DB-9" cord. You can use any PC connected to the RS232 port to communicate with the control panel. You can use any software capable of sending ASCII strings through your PC's COM ports.

2. Electrical/Mechanical Specifications

The interface connector supports a limited RS-232 hardware interface configured as DCE (Data Communication Equipment). The pin-outs are GND – Pin 5, and the TXD – Pin 2, RXD – Pin 3 signals. The control panel ignores all handshake lines when sending data, so connected equipment must be capable of receiving continuous 9600 to 115,200 baud data.

To connect to a computer use as straight through serial cable. To connect to other DCE configured serial ports, a null modem and maybe a gender changer will be required.

Communication settings should be 9600 to 115,200 baud, 8 data bits, no parity, and one stop bit. Logic levels at the interface are standard RS-232. The interface is full duplex. Baud rates must be set in the M1 Global programming section.

3. Error Checking

The transmission contains checksum and packet length error checking. No acknowledge or re-transmission capability is implemented.

4. Messages

With the exception of the message terminator, CR-LF, all characters are printable ASCII. See Appendix for an example of C source for generating a well-formed message string.

A packet length and checksum generator program is available from ELK Products, Inc. to generate test ASCII packets. The program is called M1_SDK.exe.

4.1 Data Packet Format

Data packets both from a PC to the control panel and from the control panel to a PC use the following format.

NNMSD...OO CC (CR-LF)

ASCII hexadecimal Notation - 0x00 to 0xFF, the 0x.. Represents ASCII hexadecimal notation

4.1.1 Packet Length

NN 2 ASCII characters, length of packet including all characters except Length and CR-LF at the end of the packet. Legal values are ASCII hex 00 to FF. Permissible characters are ASCII 0-9 and upper case A-F.

4.1.2 Message Type

M 1 ASCII character, message/packet type ID. These are upper and lower case alpha characters. Upper case is used for responses from the control panel and lower case for commands to the control panel. Allowed values are a-z and A-Z

4.1.3 Sub-Message Type

S ASCII character, sub-message/packet type. These are upper and lower case alpha characters. Upper case is used for responses from the control panel and lower case for commands to the control panel. Allowed values are 0-9, a-z and A-Z.

4.1.4 Data

D... 0 or more ASCII characters of data associated with the command/packet type. Any printable ASCII character is permitted. L, P is part of the Data packet as explained when needed.

4.1.5 Reserved

0 0 Two ASCII characters, reserved for future development. The only currently legal character is 0 (ASCII zero).

4.1.6 Checksum

CC 2 ASCII characters, 2-digit checksum. This is the hexadecimal two's complement of the modulo-256 sum of the ASCII values of all characters in the message excluding the checksum itself and the CR-LF terminator at the end of the message. Permissible characters are ASCII 0-9 and upper case A-F. When all the characters are added to the Checksum, the value should equal 0.

4.1.7 Terminator

(CR-LF) Message terminator. ASCII characters consisting of hexadecimal 0x0D and 0x0A. The 0x0A is optional. A message terminator may also use the 0x0A only.

NNMSD...0 0 CC (CR-LF) packet protocol

4.1.8 Message Processing Time:

The M1's incoming message buffer can hold up to 250 characters. Control messages take different times to process messages: Lighting control messages may take up to 500 ms to process the message and send it to a M1XSP Serial Port Expander if it is used. The M1XSP can buffer two control messages. Some of the lighting control systems have status feedback with failure retries which may take 2 to 3 seconds to transmit to a faulty light control signal.

Note: In the examples below, the data portion will be in **Bold** text. The packet length and checksum will not be in bold.

4.2 Arm and Disarm Messages (a0..a8)

For Arm and Disarm messages the data field **aLP*DDDDDD*** consists of:

```
aL P DDDDDD
```

Example: `0D` **`a1 1 003456 00`** `37`

L = Arming Level. Range: 0 to 8.

0 = Disarm
1 = Armed Away
2 = Armed Stay
3 = Armed Stay Instant
4 = Armed Night
5 = Armed Night Instant
6 = Armed Vacation
7 = Arm to next Away Mode Version 4.2.8 or later
8 = Arm to next Stay Mode Version 4.2.8 or later

P = Partition or Area 1 to 8

DDDDDD = six digits for the User Code. If using four digits as the code length, precede the code with 0's, ex. 1234 would be 001234.

Note: Arming the control panel with zones open will initiate "force arming" regardless of whether force arming is enabled or disabled in the control panel.

Arm / Disarm Examples

4.2.1 Disarm (a0)

0D**a010034560**038(CR-LF)
Example: a0=Disarm, 1=Area 1, 003456=User Code 3456.

4.2.2 Arm to Away (a1)

0D**a11001234003**F(CR-LF)
Example: a1=arm away, 1=Area 1, 001234=User Code 1234.

4.2.3 Arm to Stay (Home) (a2)

0D**a23005678002**C(CR-LF)
Example: a2=arm stay, 3=Area 3, 005678=User Code 5678.

4.2.4 Arm to Stay Instant (a3)

0D**a380056780026**(CR-LF)
Example: a3=arm stay instant, 8=Area 8, 005678=User Code 5678.

4.2.5 Arm to Night (a4)

0D**a480056780025**(CR-LF)
Example: a4=arm night, 8=Area 8, 005678=User Code 5678.

4.2.6 Arm to Night Instant (a5)

0D**a580056780024**(CR-LF)
Example: a5=arm night instant, 8=Area 8, 005678=User Code 5678.

4.2.7 Arm to Vacation (a6)

0D**a680056780023**(CR-LF)
Example: a6=Vacation, 8=Area 8, 005678=User Code 5678.

4.2.8 Arm, Step To Next Away Mode (a7)

0D**a710034560031** (CR-LF) Version 4.2.8 or later.
Example: a7=Step to next Away arming mode, 1=Area 1, 003456=User Code 3456.

4.2.9 Arm, Step To Next Stay Mode (a8)

0D**a810012340038** (CR-LF) Version 4.2.8 or later.
Example: a8=Step to next Stay arming mode, 1=Area 1, 001234=User Code 1234.

You can send a request to the control panel for its arming status by sending an Arming Status request. The Control panel will respond with an Arming Status Report.

4.2.10 Arming Status Request (as)

```
06 - Length as ASCII hex
```
as – Request arming status
```
00 - future use
CC - Checksum
```

Example: 06**as00**66**(CR-LF)** Request Arming status

The control panel responds to this message with an Arming Status Report

4.2.11 Reply Arming Status Report Data (AS)

```
1E – Length as ASCII hex
AS – Reply with zone definition data
S[8]  - Array of 8 area armed status.
U[8]  - Array of 8 area arm up state.
A[8]  - Array of 8 area alarm state.
00 – future use, M1 Version 4.11 and later, contains the first
   found Exit time if U[x] = '3' or Entrance time if A[x] = '1' as
   two digits hex in seconds.
CC – Checksum
```

Example: 1E**AS10000000400000003000000000**0E Area 1 is armed away, and the area is in full fire alarm.

Example: 1EAS1000000**3**1111111000000000**09**02 Exit time set to 9 seconds.

If the control's area status changes, this message will be sent if Global Option "Transmit Keypad Keys" is enabled.

"S" 8-character array field, represents the arming status of partitions 1-8. The leftmost "S" is Area 1. Each area or partition field can contain one of the following ASCII values:

'0' Disarmed
'1' Armed Away
'2' Armed Stay
'3' Armed Stay Instant
'4' Armed to Night
'5' Armed to Night Instant
'6' Armed to Vacation

"U" 8-character array field, represents the arm up state of partitions 1-8. The leftmost "U" is Area 1. Each area or partition field can contain one of the following ASCII values:

'0' Not Ready To Arm
'1' Ready To Arm
'2' Ready To Arm, but a zone is violated and can be Force Armed.
'3' Armed with Exit Timer working
'4' Armed Fully
'5' Force Armed with a force arm zone violated
'6' Armed with a bypass

"A" 8-character array field, represents the current alarm state of partitions 1-8. The leftmost "A" is Area 1. Each area or partition field can contain one of the following ASCII values:

'0' No Alarm Active
'1' Entrance Delay is Active
'2' Alarm Abort Delay Active
'3' to 'B' Area is in Full Alarm, see ASCII alarm table values below:

```
FireAlarm = '3',
MedicalAlarm = '4',
PoliceAlarm = '5',
BurglarAlarm = '6',
Aux1Alarm = '7',
Aux2Alarm = '8',
```

```
Aux3Alarm = '9', //not used
Aux4Alarm = ':', //not used
CarbonMonoxideAlarm = ';',
EmergencyAlarm = '<',
FreezeAlarm= '=',
GasAlarm = '>',
HeatAlarm = '?',
WaterAlarm = '@',
FireSupervisory = 'A',
VerifyFire = 'B',
```

4.3 Send ASCII String To IP Address(AP)

The AP command allows you to send a custom ASCII string message via TCP/IP to a specific IP address on a specific port. To accomplish this, you need to create a TEXT string in the Automation/Text section of ELKRP which is stored in the M1. This text string will consist of the message to send plus some destination information.

One of the eight Central Station IP Receiver addresses programmed in the M1XEP must be used (Central Station tab on the M1XEP Setup dialog in ElkRP). If used for this command, that IP address may not be used for reporting alarms and other events to a Central Station.

To enter the Central Station's IP address on the M1XEP Setup dialog in ElkRP, a "Telephone Number" must be enabled with a "Reporting Format" of "6 = Ethernet M1XEP". Since this Telephone Number cannot be used for reporting alarms and other events MAKE certain to uncheck all Area blocks as well as the Events to be reported blocks on this screen.

Then create a TEXT string and store it in the M1's Automation/Text section:

00APxDDDD…{up to 200 ASCII chars here}CRLF

00 - two zeros. Any two digits will work, but they are ignored.
AP - Command to send text string.
x - ASCII "1" - "8". This tells the M1XEP which Central Station IP address to use. Corresponds to Telephone 1-8.
DDDD… - ASCII text data
CRLF - Carriage Return/Line Feed

EXAMPLE: **00AP4Sprinkler 1 ON^M^J** Build a text string and store in the M1's Automation/Text section using ELKRP. "^M^J" is a carriage return/line feed.

The example will send "Sprinkler 1 ON" to the IP address programmed as telephone number 4.

Write a RULE to send this text string out serial port 0. When the M1XEP receives it, it will broadcast it to all current connected devices. The entire string will be included in the local broadcast. Then the M1XEP will look up the specified Central Station IP address/port and send only the ASCII message in a TCP packet to that address/port.

Special Case:

If the first character of the text string message is an ASCII "3", the M1XEP will insert zone status of all 208 zones at the end of the remaining ASCII message (if any characters follow the "3") and before the

CR/LF. The Zone Status is 208 bytes and is identical to the "data" portion of the "ZS" ASCII command.

EXAMPLE: 00AP43SendingZoneStatus^M^J

Packet Data: **SendingZoneStatus(208 bytes of ZS zone status) (CR-LF)**

4.4 Ethernet Central Station Reporting (AR)

4.4.1 Alarm Reporting (AR)

Reporting of alarms through the built on serial port 0 consists of an ASCII string following the same data format of the digital dialer's Contact ID transmission. Programming one of the telephone numbers with a dialer format set to "Ethernet" will enable the transmissions of the alarm ASCII strings over the RS-232 serial port 0. Available in M1 Version 4.2.8 and after.

16ARAAAAAACCCCGGZZZT00CC<cr><lf>

16 – Length as ASCII hex, 22 bytes
AR – Alarm Reporting Command
AAAAAA – Account Number, 6 ASCII digits
CCCC - Alarm Code consists of 4 ASCII digits.
GG - Group/Partition Number consisting of 2 ASCII digits.
ZZZ - Zone/User Number consisting of 3 ASCII digits.
T – IP Address to send alarm on. Valid 1 to 8 on M1 Gold, 1 to 4 on M1 Standard and Ez8.
00 - Future use 2 digits.
CC – checksum

Example: 16 **AR 123456 1134 01 001 1 00** 85 **-** Length 22 bytes, AR alarm reporting, account 123456, CID – Burglar Entry/Exit 1, Area 01, Zone 001, use telephone/IP address 1. Spaces are for readability only.

4.4.2 Alarm Report Acknowledge (ar)

The Ethernet Module (M1XEP) will acknowledge the M1's Alarm Report transmission with the reply: 06**ar00**67**<cr><lf>.** This acknowledge is sent to the M1 only if the central station's server acknowledges the Ethernet Module's data packet.

4.4.3 Alarm Reporting Test (AT)

The Alarm Reporting Test string is sent every 15 minutes from the M1 as a keep alive message to the M1XEP Ethernet Module along with which IP address to test. All IP addresses are set into the M1XEP module.

07 – Length as ASCII hex, 7 bytes
AT – Alarm Reporting Command
T – IP Address to test, 1-8
00 - Future use 2 digits.
CC – checksum

Example: 07 **AT 1 00** 73 Send keep alive signal to the M1XEP and test IP address 1. Spaces are for readability only.

4.4.4 Alarm Reporting Test Acknowledge (at)

If the Alarm Reporting Test if successful to the central station's IP address the Acknowledge message will be sent to the M1 from the M1XEP: 06**at00**65**<cr><lf>.**

4.4.5 Ethernet Module Test (XK)

The "XK" command is automatically sent every 30 seconds. This is done regardless of whether an M1XEP Ethernet Module is present or not. The XK command serves two purposes. 1) It tests to see if a M1XEP Ethernet Module is connected to the Control. 2) It includes the Control's real time clock information (current Date and Time) for general purpose use, including but not limited to clock synchronization by a third party device..

The expected response from a connected M1XEP Ethernet Module is "xk". However, the Control does not actually care or keep track of a missing "xk" response UNLESS or UNTIL after a M1XEP Ethernet Module has been properly enrolled with the Control. This can be accomplished via the Bus Module Enrollment process (Keypad programming Menu 1) or by the RP software). Once an M1XEP has been enrolled, the Control will now begin tracking each response to an "XK" command, and it will display and log an "Ethernet Trouble" message if an "xk" response is not received within 120 seconds of the "XK" command. This response scenario is also true for alarm reporting commands "AT" and "AR". Basically, the M1XEP will withhold sending the "xk" response if it should fail to complete an alarm or restoral transmission after 2 attempts. This allows for 1 transmission miss.

NOTE: Control Firmware Version 4.32 and after includes the M1's real time clock information.

16 – Length as ASCII hex, 22 bytes
XK – Test Ethernet Module is alive
ss – second as two ASCII characters decimal, "00" to "59"
mm – Minute as two ASCII characters decimal, "00" to "59"
hh – Hour as two ASCII characters decimal, "00" to "23" 24 hour
D – Day of week as one ASCII character, "1"=Sunday to "7"=Saturday
DM – Day of month as two ASCII characters decimal, "01" to "31"
MM – Month as two ASCII characters decimal, "01" to "12"
YY – Year as two ASCII characters decimal, "00" to "99" as in 2099
S - Daylight Savings Time: "0"=Not active, "1"= Active.
C - Clock Mode* as one ASCII character*, '1' = 12 hour, 0 = 24 hour time mode
T - Date Display Mode as one ASCII character, 0 = mm/dd, 1 = dd/mm
00 - Future use 2 digits.
CC – checksum

Example: 16**XK263611502060511000**6F test signal to the M1XEP module. Real Time Clock Value = Thursday, 11:36:26 PM, June 2, 2005, Daylite savings is active for this time of year, Clock display mode is 12 hour, Date display mode is month/day.

4.4.6 Ethernet Module Test Acknowledge (xk)

If the Ethernet Module is alive, it will reply back to the M1 with: 06**xk00**57**<cr><lf>.**

4.5 Alarm By Zone Request (AZ)

```
06 – Length as ASCII hex      M1 version 4.3.9 and later
az – Request alarm by zone
00 – future use
CC – Checksum
```

Example: 06**az00**5F **(CR-LF)**

Request alarm by zone

The control panel responds to this message with an Alarm By Zone Report

4.5.1 Reply Alarm By Zone Report Data (AZ)

```
D6 – Length as ASCII hex     M1 version 4.3.9 and later
AZ – Reply with zone definition data
      Z[208]  - Array of 208 bytes showing alarm by zone. A value
of '0' or 0x30 indicates the zone is not in alarm. A value greater
than '0' indicates the zone has been triggered into alarm.  The zone
value will be reset back to '0' when an authorization code is entered
to acknowledge the alarm.  The value in the zone byte is the same as
the zone function value plus 0x30 or 48. See table below.
   00 – future use
   CC – Checksum
```

Zone Definitions in Alarm By Zone string:

Disabled = '0'
Burglar Entry/Exit 1 = '1'
Burglar Entry/Exit 2 = '2'
Burglar Perimeter Instant = '3'
Burglar Interior = '4'
Burglar Interior Follower = '5'
Burglar Interior Night = '6'
Burglar Interior Night Delay = '7'
Burglar 24 Hour = '8'
Burglar Box Tamper = '9'
Fire Alarm = ':'
Fire Verified = ';'
Fire Supervisory = '<'
Aux Alarm 1 = '='
Aux Alarm 2 = '>'
Key fob = '?' //not used
Non Alarm = '@' //not used
Carbon Monoxide = 'A'
Emergency Alarm = 'B'
Freeze Alarm = 'C'
Gas Alarm = 'D'
Heat Alarm = 'E'
Medical Alarm = 'F'
Police Alarm = 'G'
Police No Indication = 'H'
Water Alarm = 'I'

```
      Subtract 0x30 or 48 from the ASCII value to get the
numeric decimal value.
```

Example:

D6AZ0000000090000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000000000000
0000082

Zone 9 is in alarm and is defined as a "Burglar Box Tamper" zone definition 9 + 0x30 or 57 decimal.

4.6 Touchscreen Audio Command (CA)

This command is used by the touchscreens to request audio status data from the M1XEP for audio control display. It is not used by the M1. The M1XEP intercepts the command packet and sends translated commands to the audio equipment. This command is available on ELKRMS touchscreen software.

4.6.1 Request Audio Data (ca)

```
08 – Length as ASCII hex
ca – Read custom value
NN – Which zone to request data on. ASCII decimal value
00 – future use
CC – Checksum
```

Example: 08**ca0100**03 Request audio zone 1 data.

4.6.2 Reply With Audio Data (CA)

20**CAnnpssvvvbbbtttlaaamd00000000**CC

```
nn - zone ("01" - "18")
p - zone power ('0' = off, '1' = on)
ss - source ("01" – "12")
vvv - volume ("000" – "100")
bbb - bass ("000"=down(-), "050"= center, "100"=up(+))
ttt - treble ("000"=down(-), "050"= center), "100"=up(+))
l - loudness ('0'=off, '1'=on)
aaa - balance ("000"=left, "050"=center, "100"=right)
m - party mode ('0'=off, '1'=on, '2'=master)
d - do not disturb ('0'=off, '1'=on)
00000000 - Eight future use bytes
CC - checksum
```

Example: 20**CA011020500600401050000000000**C1 Audio Zone 1, Audio Zone Power On, source 2, volume 50%, bass 60=10 right of center, treble 40=10 left of center,, loudness on, balance center, party mode off, do not disturb off.

4.7 Output Change Update (CC)

0ACCZZZS00CC

```
0A – Length as ASCII hex
CC – Zone Change Message Command
ZZZ – Output Number, 1 based
S – Output State, 0 = OFF, 1 = ON
00 – future use
CC – Checksum
```

Example: 0A**CC003100**E5 Output change – Output 3, changed to ON

This transmission update option transmits the updated status whenever it changes and is enabled by setting the location TRUE in the M1 Control **Global Programming Locations 37.** *Example: "Xmit OutputChgs-ASCII" (Yes or No)*

The Output Change Update will also be transmitted out M1XSP Serial Port Expanders that are configured in the Generic Mode.

4.8 Audio Equipment Command (CD)

An M1XEP Ethernet Module is required to intercept the "cd" command. These commands are sent into the M1XEP via the Ethernet connection and passed through to the M1. The M1XEP builds custom audio commands to control the audio equipment and sends these commands to the audio equipment via ethernet. An IP232 Ethernet Module may be required at the audio equipment to received the commands if no Ethernet Port is available on the audio equipment. The incoming "cd" command can trigger Rules in the M1 which can fire outgoing audio equipment "CD" commands or other control Rules. ELKRP downloads the Audio Equipment Command tables into the M1XEP according to the Audio Equipment Manufacturer. M1 version 4.1.11, 5.1.11 or later is required.

4.8.1 Incoming Audio Command (cd)

```
0F – Length as ASCII hex
cd – Request Audio Command
NN – Which audio command from Audio Command Table.
SS – Audio Source Information
ZZ – Audio Zone Information
VVV – Audio State or Value
00 – future use
CC – Checksum
```

The "cd" command may or may not use the audio source and zone information.

Example: 0F**cd01020300**00AD Audio command 1, Source 2, Zone 3, Power On

Example: 0F**cd10020305**00A8 Audio command 10, Source 2, Zone 3, Volume Level = 50

4.8.2 Audio Command Table (used by M1XEP)

Function	Description (numeric NN value)
Power Off	0-Turns the zone power Off.
Power On	1-Turns the zone power On.
Power Toggle On/Off	2-Toggles Power state of a zone.
Next Source	3-Steps to next source
Source	4-Select a source input.
Previous Select	5-Steps backward to previous available.
Next Select	6-Advances forward, next.
Volume Down	7-Decrement the zone volume.
Volume Up	8-Increment the zone volume.
Mute Audio	9-Toggles the mute on/off of a zone.
Volume set	10-Set zone volume to a level.

Play	11-Starts source Play
Pause	12-Pauses Play
Stop	13-Stop Play
Select Favorite #1	14-Executes Favorite Playlist 1.
Select Favorite #2	15-Executes Favorite Playlist 2.
Minus	16-Down Select
Plus	17-Up Select
All Zones Off	18-Turn all zones off
All Zones On	19-Turn all zones on
Audio System Manufacturer	20-Version number, VVV value: 0 = No audio configured 1 = Russound 2 = Nuvo 3 = Proficient 99 = IP Failure

4.8.3 Outgoing Audio Command (CD)

```
0F – Length as ASCII hex
CD – Request Audio Command
NN – Which audio command from Audio Command
       Table.
SS – Audio Source Information
ZZ – Audio Zone Information
VVV – Audio State or Value
00 – future use
CC – Checksum
```

Example: 0F**CD02030400**00EA Audio command 2, Source 3, Zone 4, Toggle Power.

Example: 0F**CD09030400**00E3 Audio command 09, Source 3, Zone 4, Toggle Mute.

4.9 Control Output Messages

You can use a PC to send a command to control a control panel output. The data portion of the output on and off commands, DDD is a 3-digit, (1 base) referenced decimal number corresponding to the number of the desired output, 1 to 208.

TTTTT is the number of seconds the output will be active. A value of 0 will stay on until commanded to turn off. Range: 0 to 65535

You can also query the control panel concerning output status with a Control Output Status Request. The control panel will respond with a Control Output Status Report.

4.9.1 Control Output off (cf)

09cfDDD00CC(CR-LF)

Example: turn off Control Output 2: 09**cf00200**DC(CR-LF)

4.9.2 Control Output On (cn)

0EcnDDDTTTTT00CC(CR-LF)

Example: turn on Control Output 1 for 10 seconds: 0E**cn0010001000**D8(CR-LF)

4.9.3 Control Output Status Request (cs)

06**cs00**64(CR-LF)

The control panel responds with a Control Output Status Report for all 208 outputs.

4.9.4 Control Output Status Report (CS)

D6CSD…00CC*(CR-LF)*

The control panel sends this message in response to a Control Output Status Request. The data portion of this message is 208 characters long, one character for each output in order. The value will be: 0 (Off), 1 (On).

Example*:* With control output 1 off, output 2 on, output 3 and output 4 off, the message would begin D6CS0100…

4.9.5 Control Output toggle (ct)

09ctDDD00CC(CR-LF)

Example: toggle Control Output 2: 09**ct00200**CE(CR-LF)

4.10 Change And Read Custom Values (CR)

This request command allows automation equipment to read and change a Custom Value stored in the M1. Custom Values are user changeable values stored in EEProm Memory such as sprinkler watering times or wakeup times.

4.10.1 Read Custom Value (cr)

```
            08 – Length as ASCII hex
            cr – Read custom value
            NN – Which Custom Value to be returned (2 decimal ASCII
digits, 1               based).  ie.”16” = custom value 16. Range 1 to
20.
            00 – future use
            CC – Checksum
```

Example: 08**cr0100**02 Read custom value 1.

4.10.2 Read ALL Custom Values (cp)

```
06 – Length as ASCII hex
cp – Read ALL custom values
00 – future use
CC – Checksum
```

Example: 06**cp00**67 Read all custom values.

4.10.3 Reply With Custom Value (CR)

```
0E – Length as ASCII hex    Length fixed in M1 Version
4.3.1 and later
CR – Returned custom value
NN – Which Custom Value to be returned (2 decimal ASCII
digits, 1              based).  ie.”16” = custom value 16. Range 1 to
20.
DDDDD – 16 bit Custom Value returned ( 5 decimal ASCII
digits)
      If Format = 2, Time of day, this value should be
      converted to a hexidecimal value.  The low two bytes
      will display the minutes in hexidecimal, the third
      and fourth bytes will display the hours in
      hexidecimal.
F  -  Custom value format. 0=Number, 1=Timer, 2=Time of day
      00 – future use
CC – Checksum
```

Example: 0E**CR01001230000**F Returned value = 123, Number format, from Custom Value 1

Example: 0E**CR010541620**003 Convert 5416 to hex = 15 28. Convert 15 to decimal = 21. Convert 28 to hex = 40. Therefore time = 21:40 or 9:40 PM.

4.10.4 Reply With <u>ALL</u> Custom Values (CR)

```
80 – Length as ASCII hex    Length fixed in M1 Version
4.3.6 and later
CR – Returned custom value
NN = 00.   00 implies all 20 Custom Values returned.
DDDDD… – 16 bit Custom Value returned ( 5 decimal ASCII
digits)
      If Format = 2, Time of day, this value should be
      converted to a hexidecimal value.  The low two bytes
      will display the minutes in hexidecimal, the third
      and fourth bytes will display the hours in
      hexidecimal.
F  -  Custom value format. 0=Number, 1=Timer, 2=Time of day
      … DDDDD and F above is repeated 19 more times
      corresponding to each of the 20 custom values.
00 – future use
CC – Checksum
```

4.10.5 Write Custom Value (cw)

```
0D – Length as ASCII hex
```

```
            cw – write custom value
            NN – Which Custom Value to be written (2 decimal ASCII
digits, 1                    based).  ie.”16” = custom value 16. Range
1 to 20.
            DDDDD – 16 bit Custom Value to write ( 5 decimal ASCII
digits)
                  If the Custom Value Format = 2, Time of day, place
                  the hours in bytes 3 and 4 as a hexidecimal value and
                  the minutes in bytes 1 and 2 as a hexidecimal value.
                  Then convert that value to decimal and place in the
                  DDDDD value.
            00 – future use
            CC – Checksum
```

Example: 0D**cw050012300**F7 Written value = 123 into Custom Value 5. The “Reply With Custom Value” (CR command above) string will be returned after the EEprom has been written.

Example: 0D**cw010541600**F1 Write 9:40 PM to Custom Value 1 which was previously set as a Time of day format. Convert time to 24 hour format: 21:40. Convert the hours and minutes to hexidecimal 15 28. Convert entire value to decimal: 5416. Place in DDDDD value.

4.11 Change User Code (CU)

This command allows automation equipment to change a user code. The data packet must include a Master User Code or the current user code of the user code to be changed. 4.3.9 and after.

4.11.1 Request Change User Code (cu)

```
            23– Length as ASCII hex
            cu – Request change user code
            ccc – User code to change
            abababababab – Master or current user authorization code.
               Upper and lower nibble of code.  For user code the “a”
               will be an ASCII zero (0).  For Prox codes the “a”
               expressed in ASCII, will be the upper nibble of the byte
               of the Prox code. Right justified.
            anananananan – New user code to change to.  “a” is the
               upper nibble of the user code in ASCII.  Normally set to
               zero(0).  If a Prox code the value will be the upper
               nibble of the Prox code byte in ASCII. Right justified.
            NN – Areas code may be used in.  Two ASCII Hex characters,
               0-9,A-F, using the Hex value of each character as the
               mask for 4 areas. Right most character is areas 1 to 4
               with bit 0 equal to Area 1. Authorization code must be
               valid in areas requested. If Area value = “00” then no
               area change is made.
            00 – future use, first byte used for Code Restriction
set/clear.
            CC – Checksum
```

Example: 23**cu00500000304050600000908070621 00**BB Request user code 5 to be changed to 009876, authorized by user code 003456. Code is valid in Areas 1 and 6 if authorization code is valid in Areas 1 and 6.

4.11.2 Reply Change User Code (CU)

```
0B – Length as ASCII hex
CU – Reply Lighting Device Status data
ccc – 000 = User code change denied due to invalid
      authorization code, 001 to 254 indicates user code
      that was changed. 255 = new code is a duplicate and
      change is denied.
00 – future use
CC – Checksum
```

Example: 09**CU005000**0A User code 005 was changed.

Example: 09**CU000000**0F User code denied due to invalid authorization code.

Example: 09**CU255000**3 User code denied due to duplicate code.

Note: Setting the first future use byte to "1" in the "cu" command will set the user code restriction which will prevent the code from being used. Setting the first future use byte to "0", enables the code to be used.

To M1: 23cu00500000304050600000808070621**1**0BB **If you send the first Future Use byte as a '1', the code will not be programmed, but the restriction on the code will be enabled.**

From M1: 09CU0051009 **Response from the M1 that the code is restricted.**

To M1: 23cu00500000304050600000808070621**2**0BA **Sending a '2' value in the first Future Use byte takes the code restriction away.**

From M1: 09CU005**0**00A **Response from M1 with the code restriction cleared.**

4.12 Change And Read Counter Values (CV)

This request command allows automation equipment to read and change a Counter Value stored in the M1. Counter Values are RAM based and may be used as flags or to hold simple math values. This feature is available in M1 versions 4.1.11, 5.1.6 and later.

4.12.1 Read Counter Value (cv)

```
08 – Length as ASCII hex
cv – Read counter value command
NN – Which Counter Value to be returned (2 decimal ASCII
digits, 1              based).  ie."16" = counter value 16. Range 1 to
64.
00 – future use
CC – Checksum
```

Example: 08**cv0100**FE Read counter number 1.

4.12.2 Write Counter Value (cx)

```
0D – Length as ASCII hex
cx – Write counter value command
```

```
            NN - Which Counter Value to be returned (2 decimal ASCII
digits, 1               based).  ie.”16” = counter value 16. Range 1 to
64.
            DDDDD - 16 bit Counter Value returned (Five decimal ASCII
                  digits). Range 0 to 65535.
            00 - future use
            CC - Checksum
```

Example: 0D**cx011234500**F1 Write counter number 1 to a value of 12345. Returns “CV” command string as reply.

4.12.3 Reply With Counter Value Format (CV)

```
            0D - Length as ASCII hex
            CV - Returned Counter value command
            NN - Which Counter Value to be returned (2 decimal ASCII
digits, 1               based).  ie.”16” = counter value 16. Range 1 to
64.
            DDDDD - 16 bit Counter Value returned (Five decimal ASCII
digits)
                  Range 0 to 65535.
            00 - future use
            CC - Checksum
```

Example: 0D**CV0100123000**3C Returned value = 123, from Counter number 1

4.13 Display Text On LCD Screen (dm)

This is a M1 received message to display ascii text on the bottom line of the LCD display on the keypads in the area specified. Enter the line terminator, “^”, as the ending character of the line display if less than 16 characters are to be displayed. The message line, L1 or L2, will need dummy characters to fill the rest of the line for 16 characters each line.

```
2E - Length as ASCII hex
dm - Display Message On Keypad Command
A - Keypad Area, 1 to 8
C - Clear, 0=clear message, 1=clear message with * key,
2=Display until timeout
B - Beep Keypad, 0=no beep, 1=beep
TTTTT - Display time in decimal seconds, 0=No timeout, 1 - 65535
seconds
L1[16] - 16 ASCII characters for first line
L2[16] - 16 ASCII characters for second line, alternately
          scrolled with first line
00 - future use
CC - Checksum
```

Example: 2E**dm11100020abc^efghijklmnopABCDEF^HIJKLMNOP00**B2
Would display “abc” on the first line and “ABCDEF” on the second line

If the second line is not needed, enter a "^"as the first character of the second line. The second line will be scrolled with the first line if it is included.

LCD will display:

Ready To Arm **abc**	then	**Ready To Arm** **ABCDEF**

4.14 Lighting Device Status Poll (DS)

This command allows the M1 to poll single light devices to obtain their on, off, dim status. This will be an automatic command issued from the M1 to the M1XSP Type modules that connect to lighting devices. Note: Only single light devices can be polled for status. Groups and scenes will not return valid data. Enable the "2 Way" Poll setting for the device to be polled. M1 Version 4.3.9 and after. This command cannot be used by automation equipment.

4.14.1 Request Lighting Device Status (ds)

```
09 – Length as ASCII hex
ds – Request lighting device status
aaa – Lighting device number 001 to 256, base 1, device A1
= 001
00 – future use
CC – Checksum
```

Example: 09**ds00100**CF Request lighting device status of lighting device 001.

4.14.2 Reply Lighting Device Status Data (DS)

```
0B – Length as ASCII hex
DS – Reply Lighting Device Status data
aaa – Lighting device number 001 to 256, base 1, device A1
= 001
ss – Lighting status. 00 = Off, 01 = Full On, 2 to 99 = Dim
level
00 – future use
CC – Checksum
```

Example: 0B**DS001990**94 Reply lighting status of device 001, set to a dim level of 99%.

4.15 Entry/Exit Time Data (EE)

This sends the entry 1 & 2 and exit 1 & 2 time data when the timers start by area. When each exit timer expires an "EE" command is also transmitted. M1 Version 4.1.12, 5.1.12 or later. Armed State available in 4.1.18, 5.1.18 or later.

4.15.1 Send Entry/Exit Data (EE)

```
0F – Length as ASCII hex
EE – Send exit/entry timer data.
A – Area, "1" to "8".
D – Data Type. "0" = Exit, "1" = Entrance time.
```

```
ttt – Timer 1 value in seconds. Range "000" to "255"
     seconds.
TTT – Timer 2 value in seconds. Range "000" to "255"
     seconds.
S – Armed State   0=Disarmed
                  1=Armed Away
                  2=Armed Stay
                  3=Armed Stay Instant
                  4=Armed Night
                  5=Armed Night Instant
                  6=Armed Vacation
00 – future use
CC – Checksum
```

Example 1: 0FEE10060120100E5Area 1, Exit 1 Time = 060, Exit 2 Time = 120 seconds started, Armed Away.
Example 2: 0FEE21030254200DD Area 2, Entrance 1 Time = 030, Entrance 2 Time = 254 seconds started, Armed Stay.

4.16 Email Trigger (EM)

This command allows the triggering of email transmissions from the M1XEP Ethernet interface. This command originates in the M1 and is sent to the M1XEP through serial port 0 only. M1 Version 4.2.8 and after.

4.16.1 Send Email Trigger Data (EM)

```
09 – Length as ASCII hex
EM – Send email trigger command to M1XEP.
DDD – The address of the email message to send.  This
     corresponds to the email messages that are stored in
     the M1XEP Ethernet interface.
00 – future use
CC – Checksum
```

Example: 09**EM00100**14 Send email message 001 trigger to the M1XEP Ethernet interface. The M1XEP will then send the email on the Ethernet to the email address that is associated with the message.

4.17 Send Valid User Number And Invalid User Code (IC)

This ASCII Data Packet will be sent when a user code is entered and a valid code is found. Only the valid user code number will be returned. If a user code is not found in the M1's User Code Data Base, the code that was enter will be sent. If the User Code Length is set to 4 digits, the invalid data packet will be sent after 4 digits are entered, then repeated for each additional invalid user code digit. If the User Code Length is set to 6 digits, the invalid data packet will be sent after 6 digits are entered, then repeated for each additional invalid user digit. If prox card data is enter, the packet will be sent immediately. This data can be used by automation equipment with its own user code data base. The automation equipment would sent the appropriate arm/disarm command ("a0" to "a6") or output relay control commands ("cn", "cf", or "ct") back to the M1 after it has verified the proper code is in its data base. Modified for 26 bit Weigand data cards and available in M1 Version 4.2.8 and after.

4.17.1 Send Valid Or Invalid User Code Format (IC)

17 – Length as ASCII hex. 12 in M1 software versions before 4.3.2

IC – Send Invalid User Code digits

DDDDDDDDDDDD – 12 characters of ASCII Hex (0 to F) user code data. High nibble and low nibble of each code data byte. 4 & 6 digit codes are left padded with zeros. Set to all zeros if code is valid.

UUU – 3 characters of ASCII decimal User Code Number 001 to 103, indicating which valid user code was entered. Version 4.3.2 and later.

NN – Keypad number, 01 to 16, that generated the code.

00 – future use

CC – Checksum

Version 4.4.2 and later, user code 201 = Program Code, 202 = ELK RP Code, 203 = Quick Arm, no code.

Example 1: 17**IC 00 00 03 04 05 06 000 01 00**CC Invalid user keypad code 3456. Keypad entered codes only use the low nibble of the 6 bytes of code data. Spaces in this example are for reading clarity only.

17 – Length as ASCII hex

IC – Command

00 – high and low nibble of byte one in high and low ASCII character.

00 – high and low nibble of byte two in high and low ASCII character.

03 – high and low nibble of byte three in high and low ASCII character. Low nibble has first character of keypad code entry.

04 – high and low nibble of byte four in high and low ASCII character. Low nibble has second character of keypad code entry.

05 – high and low nibble of byte five in high and low ASCII character. Low nibble has third character of keypad code entry.

06 – high and low nibble of byte six in high and low ASCII character.

Low nibble has fourth character of keypad code entry.

000 – Valid user code number. Set to 0 for an invalid user code.

01 - Keypad number 01 generated the code.

00 - Future Use

CC – Checksum

Example 2: 17**IC 123456789012 000 01 00**4B Invalid 26 bit Weigand prox card code. Prox card codes use the high and low nibbles of the 6 bytes of code data. Spaces in this example are for reading clarity only.

17IC – length and command

123456789012 - Example prox card code. ASCII Hex (0 to F).

000 – Valid user code number. Set to 0 for an invalid user code.

01 – Keypad number that generated code.

004B - not used byte characters and checksum

Example 3: 17**IC 000000000000 003 01 00**78 Valid user code. Prox card codes use the high and low nibbles of the 6 bytes of code data. Spaces in this example are for reading clarity only.

17IC – length and command

000000000000 – Invalid user code data is set to all zeros on a valid user code. This hides all valid codes.

003 – Valid user code number 3.

01 – Keypad number that generated code.

0078 - not used byte characters and checksum

4.18 Installer Program Mode Exited (IE)

This command is automatically sent through serial port 0 only when the installer mode is terminated. This is done by pressing the "*" key three times or the installer timer runs out. This command is used by the M1XEP Ethernet Interface to know when to reload M1 program data after an installer has done any keypad programming. M1 Version 4.2.8 and after.

4.18.1 Send Installer Mode Exited (IE)

```
06 – Length as ASCII hex
IE – Send installer mode exited.
00 – future use
CC – Checksum
```

Example: 06**IE00**AC Send installer mode has exited.

The "IE" is sent out when ELK RP disconnects. See section **4.33 ELKRP Connected (RP)** for additional information.

4.19 Insteon Lighting Systems for the M1XSP Serial Port Expander (IR)

This command allows programming and reading from the M1XSP Serial Port Expander the Insteon device addresses. The M1XSP's jumper configuration is set for Insteon Operation and the alternate application code in the M1XSP has been loaded with the Insteon Application. Commands may be sent to program and read the Insteon device IDs. Lighting device descriptions may also be accessed from the M1. The connecting PC's baud rate must be set for 4800 baud, 8 bits, no parity. Connection is through the 9 Pin, RS-232 connector on the M1XSP module with a NULL Modem adapter. All data packets are terminated with a carriage return (0x0D) with a line feed option (0x0A).

4.19.1 Request ASCII Lighting Device Description (sd)

```
0B – Length as ASCII hex
sd – Request ASCII String Text Descriptions Command
07 – Lighting device description
NNN – Which lighting description to be returned, 1 – 192
00 – future use
CC – Checksum
```

Example: 0B**sd07001005**F Request Lighting Device 001 (A1) Name.

4.19.2 Reply With ASCII String Text Descriptions (SD)

Reply format:

```
1B – Length as ASCII hex
SD – Reply ASCII Lighting Device Command
07 – Lighting device description
NNN – Which lighting device description being returned,
  001 – 192
Text[16] – 16 ASCII characters, "space" character
            (20 hex) filled if less than 16 characters.
00 – future use
CC – Checksum
```

Example: 1D**SD07001Hall Light 0089**D2
Lighting Device 001 Description – "Hall Light"

Note: **The high bit of the first character in the text string <u>may</u> be set as the "Show On Keypad" bit. Mask out the high bit for proper ASCII display.**

If the first character in a requested name is a "space" or less, then the next names are searched until a name is found whose first character is greater than "space" or the "Show On Keypad" bit is set. If no valid names are found, a "000" for the NNN address is returned. This speeds up the loading of names so that invalid names are not returned.

4.19.3 Request Read Of Insteon Lighting Device Data (ir)

```
0A – Length as ASCII hex
ir – Request read of Insteon lighting device data
aaa – Starting Lighting device number 001 to 192
n   - Number of devices to return, 1-8
00 – future use
CC – Checksum
```

Example: 0A**ir001800**8B Request read of lighting device data starting at device 001 and returning 8 devices.

4.19.4 Reply Read Of Insteon Lighting Device Data (IR)

```
XX – Length as ASCII hex
IR – Reply read of Insteon lighting device data
aaa – Starting Lighting device number 001 to 192
n   - Number of devices being returned, 1-8
AAAAAA  Insteon Device ID with 6 ASCII Hex bytes
BBBBBB     per device.  Number of devices determined
CCCCCC     by "n" above
…
EEEEEE
FFFFFF
00 – future use
CC – Checksum
```

Example: 22**IR0014123456ABCDEF987654A1B2C300**6F
Reply Insteon lighting device ID data for device 001 to 004.

4.19.5 Request Programming Of Insteon Lighting Device Data (ip)

```
XX – Length as ASCII hex
ip – Request Program of Insteon lighting device data
aaa – Starting Lighting device number 001 to 192
n   - Number of devices being programmed, 1-8
AAAAAA  Insteon Device ID with 6 ASCII Hex bytes
BBBBBB     per device.  Number of devices determined
CCCCCC     by "n" above
…
EEEEEE
FFFFFF
00 – future use
CC – Checksum
```

Example: 22**ip0014123456ABCDEF987654A1B2C300**31
Request Programming Insteon lighting device ID data for device 001 to 004.

4.20 Request Keypad Area Assignments (KA)

This request command allows automation equipment to request the Areas that all keypads are assigned to. The return string contains a 16 byte array with keypad 1's area at array index 0 and keypad 15's area in array index 15. M1 Version 4.2.5 and after.

4.20.1 Request Keypad Area Assignment (ka)

```
06 – Length as ASCII hex
ka – Request keypad areas
00 – future use
6E – Checksum
```

Example: 06**ka00**6E Request keypad areas.

4.20.2 Reply With Keypad Areas (KA)

```
16 – Length as ASCII hex
KA – Returned Keypad Areas Command
D[16] – array of 16 ascii bytes with the first byte corresponding
      to keypad 1's area assignment (area '1' to '8'), last byte is
      keypad 16's area  assignment.
00 – future use
CC – Checksum
```

Example: 16**KA12345678111111110**081
Returned value = keypads 1 to 8 are assigned to areas 1 to 8.
Keypads 9 to 16 are assigned to area 1.

4.21 Keypad KeyChange Update (KC)

19KCNNDDLLLLLLCPPPPPPPP00CC

```
19 – Length as ASCII hex, (0A in M1 revision before 4.2.8, 11 in
   revision before 4.3.2)
KC – Keypad Change Message Command
NN – Keypad Number, 1 based
DD – Key Number from Key Table Below
L[6] – Array of 6 ASCII bytes, indicating the Keypad Function Key's
     illumination status.  L[0] = Function Key 1's LED status. "0"
     = Off, "1" = On constant, "2" = On Blinking. L[5]= F6 LED. In
     M1 software rev. 4.2.8.
C – Code required to bypass if = "1"
P[8] – Beep and chime mode. Version 4.3.2 and after
00 – future use
CC – Checksum
```

Example: 19**KC01112010000200000000**10 Keypad change – Keypad 1, "*" Key pressed, F1 LED blinking, F3 LED is On, all other F Key LED's are Off, No code required to bypass, Area 1 is constantly beeping.

Key Table:

NO KEY = 0 or a user code was sent from a keypad.
STAR KEY (*) = 11
POUND KEY (#) = 12
F1 KEY = 13
F2 KEY = 14
F3 KEY = 15
F4 KEY = 16
STAY KEY = 17
EXIT KEY = 18
CHIME KEY = 19
BYPASS KEY = 20
ELK KEY = 21
DOWN KEY = 22
UP KEY = 23
RIGHT KEY = 24
LEFT KEY = 25
F6 Key = 26
F5 Key = 27
DATAKEYMODE = 28 *Data was entered, this acts as a carriage return*

Beep and Chime mode bit settings by area (P[8]): Version 4.3.2 and after.

Chime and beep OFF = 0x30 or '0'
Single beep = 0x31 or bit 0 is set in low nibble.
Constant beep = 0x32 or bit 1 is set in low nibble. This bit will only be set once and reset to 0 when the constant beep ends.
Chime = 0x34 or bit 4 is set in low nibble. This bit will be set and reset after transmission.

This transmission update option transmits the updated status whenever it changes and is enabled by setting the location TRUE in the M1 Control **Global Programming Location 40.** *Example: "Xmit Keypad Key Chgs" (Yes or No)*

4.21.1 Request Keypad Function Key Illumination Status (kc)

08**kc0100**09

The function key illumination request returns the **Keypad KeyChange Update (KC)** data with the Key Number set to zero (0). This command allows automation equipment to request the illumination status of the keypad function keys for building virtual keypads on a PC.

08 – Length as ASCII hex
kc – Request Keypad Function Key Illumination Status Command
NN – Keypad Number, 1 based
00 – future use
CC – Checksum

Example: 08**kc0100**09 Request keypad 1's illumination status.

Returns: 11**KC01001000000009**E Keypad 1's Function Key F1 is illuminated as described in "KC" command above.

4.22 Keypad Function Key Press (KF)

This command simulates a function key being pressed on a keypad. This will only be single key press even if the M1 Control is programmed for double function key press. M1 Version 4.2.5 and after. '*' key M1 Version 4.2.6 and after, 'C' key M1 Version 4.3.2 and after.

4.22.1 Request Keypad Function Key Press (kf)

```
09 - Length as ASCII hex
kf - Function key pressed
NN - Keypad 01 to 16
D  - Which function key pressed, 1 to 6 ASCII, '*' = 0x2A to
      silence trouble beep on keypads. 'C' = 0x43 to control Chime,
      '0' function key value will only return the "KF" command
00 - future use
CC - Checksum
```

Example: 09**kf01100**D4 Keypad 01, Function Key 1 to be pressed

4.22.2 Reply Keypad Function Key Press (KF)

```
11 - Length as ASCII hex
KF - Function key pressed
NN - Keypad 01 to 16
D  - Which function key pressed, 1 to 6 ASCII, '*' = 0x2A, 'C' =
      Chime.
CM[8] - Chime mode for each area 1 to 8, '0'= Off, '1'=Chime only,
      '2' = Voice only, '3'= Chime and voice.
00 - future use
CC - Checksum
```

Example: 11**KF01C200000000**87 Function key reply with Chime Mode set to voice only in Area 1.

4.23 System Log Data Update (LD)

As the control log is written, the same information is sent out the RS-232 port. The log information will have the ddd index value set to "000" to indicate a logging entry.

The log data may also be requested with the "ld" (lower case "LD") command below. Modified in M1 `version 4.3.2`

1CLDEEEENNNAHHMMmmDDdddDYY00CC

```
1C – Length as ASCII hex
LD – Log Data Message Command
EEEE – Event
NNN – Event Number Data, i.e. Zone number, user number, etc.
A – Area Number 1 – 8
HH – Hour
MM – Minute
mm – Month
DD – Day
ddd – Decimal index to which log data, 001 to 511, added in M1
      version 4.3.2
D – Day of week, '1' = Sunday, '7' = Saturday
YY – Year as "05" = 2005
00 – future use
CC – Checksum
```

Example: 1C**LD1193102119450607001505003**F AnyArmed event-1193, user 102, Area 1, at 19:45 on June 07, Log index 001, Thursday, 2005

The "System Log Data Update" transmission option, transmits the updated status whenever it changes and is enabled by setting the location TRUE in the M1 Control **Global Programming Locations 35**. *Example: "Xmit Event Log–ASCII" (Yes or No). The request for log data "ld" is not controlled by this option.*

4.23.1 Request System Log Data (ld)

Request to get system log data entry. The first entry is index "1", the last entry is index "511". Log data index "0" is the next location to be written, index 511 is the oldest log data.

```
09 – Length as ASCII hex
ld – Request Log Data entry command (lower case 'LD')
ddd – Decimal index to which log data
00 – future use
CC – Checksum
```

Example: *09**ld00100**D6* Request log data for index 1, the newest log data. Replies with the "LD" log data command above.

4.23.2 Request Write Log Data (le)

The Write Log Data Command "le" writes log data into the M1 log specifically to trigger communicator reporting to the central station. A valid zone must be programmed for communicator reporting. The M1 will return an "OK"crlf response when the data is written to the log.

```
10 – Length as ASCII hex
le – Request Log Data entry write command (lower case 'LE')
LLL = Log Type,   Alarm = 128, Alarm Restore = 064
EEE = Event Type, 001 to 386, drop the thousand character from
  Event Table 7.0 below.
ZZZ = Zone Number, 001 to 999
A = Area,   1 to 8
00 – future use
CC – Checksum
```

4.24 Zone Temperature And Keypad Temperature (LW)

This command allows automation equipment to request the temperatures from zone temperature sensors and keypad temperatures in one ASCII packet. M1 Version 4.3.4 and after.

4.24.1 Request Temperature Data (lw)

```
06 – Length as ASCII hex
lw – Request real temperature data
00 – future use
CC – Checksum
```

Example: 06**lw00**57 Request keypad and zone sensor temperature Data. "lw" is lower case "LW"

4.24.2 Reply Temperature Data (LW)

```
66 – Length as ASCII hex
LW – Reply Temperature data
aaa – Keypad 1 temperature, as 3 ASCII characters, subtract 40.
bbb – Keypad 2 temperature, as 3 ASCII characters, subtract 40.
…  13 – 3 ASCII characters for each keypad, 3 to 15
ppp – Keypad 16 temperature, as 3 ASCII characters, subtract 40.
AAA – Zone Sensor 1 temperature, as 3 ASCII char., subtract 60.
BBB – Zone Sensor 2 temperature, as 3 ASCII characters, sub 60.
…  13 – 3 ASCII characters for each Zone Sensor, 3 to 15
PPP – Zone Sensor 16 temperature, as 3 ASCII characters, sub 60.
00 – future use
CC – Checksum
```

Example: 66**LW108109000…000130000000**7A Keypad 1 temperature is 68 degrees F. (108 – 40). Keypad 2 temperature is 69 degrees F. (109 – 40). Zone 15 temperature sensor is 70 degrees F. (130 – 60).

4.25 Power Line Carrier (PLC) Data (PC)

The Power Line Carrier (PLC) data includes X-10 and other PLC interfaces.

H = House Code, ASCII "A" to "P"
UU = Unit Code, ASCII decimal 01 to 16
FF = Function Code as follows:

```
01 = X10_ALL_UNITS_OFF in a House code
02 = X10_ALL_LIGHTS_ON in a House code
03 = X10_UNIT_ON
04 = X10_UNIT_OFF
05 = X10_DIM, EE extended value holds number of dims
06 = X10_BRIGHT, EE extended value holds number of brights
07 = X10_ALL_LIGHTS_OFF in a House code
08 = X10_EXTENDED_CODE
09 = X10_PRESET_DIM, EE extended value hold level 0 to 99%
10 = X10_EXTENDED_DATA
11 = X10_STATUS_REQ
12 = X10_HAIL_REQUEST
13 = X10_HAIL_ACK, not used
14 = X10_STATUS_ON, not used
15 = X10_STATUS_OFF, not used
```

TTTT = ON Time in seconds, range - 0 to 9999 decimal

4.25.1 Control Any PLC Device (pc)

11pcHUUFFEETTTT00CC

```
11 – Length as ASCII hex
pc – PLC Control Command
H  - House Code 'A' to 'P'
UU – Unit Code '01' to '16'
FF – Function Code '01' to '16'
EE – Extended Code '00' to '99'
      Brightness percentage level for preset dim function (9) or
      the number of dims for dim function (5), number of brights
      for bright function (6).
TTTT – ON Time in seconds, range - 0 to 9999 decimal
00 – future use
CC – Checksum
```

Example: 11**pcA01010000050**043 House Code A, Unit 1, All Lights Off for 5 seconds, then turn back On.

4.25.2 PLC Change Update (PC)

0BPCHUULL00CC

```
0B – Length as ASCII hex
PC – PLC Change Message Command
H  - House Code 'A' to 'P'
UU – Unit Code '01' to '16', '00' = All Command, see below.
```

LL – Level/scene/state Status, 0 = OFF, 1 = ON, 2-99 = light level percentage
00 – future use
CC – Checksum

Example: 0B**PCA01000**99 PLC change – A01, changed to OFF

Special: When an All_Lights_On, All_Lights_OFF, or All_Units_Off command is transmitted the Unit Code will equal 00, and the Level (LL) will be:

X10_ALL_UNITS_OFF = 01
X10_ALL_LIGHTS_ON = 02
X10_ALL_LIGHTS_OFF = 07

This transmission update option transmits the updated status whenever it changes and is enabled by setting the location TRUE in the M1 Control **Global Programming Location 39.** *Example: "Xmit Light Chgs-ASCII" (Yes or No)*

4.25.3 Turn OFF PLC Device (pf)

09pfHUU00CC
09 – Length as ASCII hex
pf – PLC OFF Command
H – House Code 'A' to 'P'
UU – Unit Code '01' to '16'
00 – future use
CC – Checksum

Example: 09**pfA0100**BF House Code A, Unit 1, Off

4.25.4 Turn ON PLC Device (pn)

09pnHUU00CC
09 – Length as ASCII hex
pn – PLC ON Command
H – House Code 'A' to 'P'
UU – Unit Code '01' to '16'
00 – future use
CC – Checksum

Example: 09**pnA0100**B7 House Code "A", Unit 1, On

4.25.5 Request PLC status (ps)

07psb00CC
07 – Length as ASCII hex
ps – request PLC status Command
b – Bank (ASCII), 0=A1 to D16, 1=E1 to H16, 2=I1 to L16, 3=M1 to P16
00 – future use
CC – Checksum
Example: 07**ps000**26 PLC status for bank A1 to D16

4.25.6 Returned PLC status (PS)

47PSBD… 00PCC

```
47 – Length as ASCII hex
PS – request PLC status Command
B - Bank, 0=A1 to D16, 1=E1 to H16, 2=I1 to L16, 3=M1 to P16
D - 64 bytes, current status of the PLC environment by bank 0 to 3.
      Subtract 48 or 0x30 hex from the value in "D".  This will
      give the light level value, (M1 version 4.2.6)
      then 0 = OFF, 1 = ON, 2 – 99 = Dim Level.
00 – future use
CC – Checksum
```

Example:

47**PS**00111111111111111100000000000000000000000000000000000000000000000000**00**53

Bank 0 (A to D Housecodes) has A2 to A16 turned On.

4.25.7 Toggle PLC Device (pt)

09ptHUU00CC

```
09 – Length as ASCII hex
pt – PLC toggle state Command
H  - House Code 'A' to 'P'
UU – Unit Code '01' to '16'
00 – future use
CC – Checksum

Example: 09ptA0100B1  House Code "A", Unit 1, Toggle
```

4.26 Reset Ethernet Module (RE)

This command is originated from the M1 and causes the M1XEP Ethernet Module to reset its processor and/or its IP address to: 192.168.0.251. This can be used when the IP address of the M1XEP is set to an unknown value. This is accessed through the M1's Keypad Global Installer Programming, Option 45, then enter 96. M1 Version 4.3.7 and after.

```
07 – Length as ASCII hex
RE – Request Request Ethernet Reset
D – "0"= Reset the Ethernet Module, "1"= Reset the Ethernet IP
      Address and Reset Module.
00 – future use
CC – Checksum
```

4.26.1 Reset Ethernet IP Address(RE)

*07**RE000**72 Reset the Ethernet Module.*

*07**RE100**71 Reset the Ethernet Module and set the IP Address to **192.168.0.251.***

4.27 ELKRP Connected (RP)

The M1XEP sends the following ASCII command out to all socket connected devices when ELK RP, Upload/Download Software, disconnects from the M1:

08**RP0000**36**<cr><lf>. ELKRP disconnected broadcast.**

The M1XEP replies to any poll when ELKRP is connected to the M1:

08**RP0100**35**<cr><lf>. ELKRP is connected, poll reply**

The M1XEP replies to any poll when the M1XEP is initializing after a powerup or reboot:

08**RP0200**34**<cr><lf>. M1XEP is initializing after powerup or reboot.**

The "IE" Command is sent out to all socket connected devices when ELKRP disconnects.

4.28 Real Time Clock (RR)

This command allows automation equipment to request and write Real Time Clock data. M1 Version 4.3.2 and after.

4.28.1 Request Real Time Clock Data (rr)

```
06 – Length as ASCII hex
rr – Request real time clock data
00 – future use
CC – Checksum
```

Example: 06**rr00**56 Request Real Time Clock Data.

4.28.2 Reply Real Time Clock Data (RR)

```
16 – Length as ASCII hex
RR – Reply real time clock data
ss – second as two ASCII characters decimal, "00" to "59"
mm – Minute as two ASCII characters decimal, "00" to "59"
hh – Hour as two ASCII characters decimal, "00" to "23" 24 hour
D – Day of week as one ASCII character, "1"=Sunday to "7"=Saturday
DM – Day of month as two ASCII characters decimal, "01" to "31"
MM – Month as two ASCII characters decimal, "01" to "12"
YY – Year as two ASCII characters decimal, "00" to "99" as in 2099
S  - Daylight Savings Time: "0"=Not active, "1"= Active.
C  - Clock Mode as one ASCII character, '1' = 12 hour, 0 = 24 hour
     time mode
T  - Date Display Mode as one ASCII character, 0 = mm/dd, 1 = dd/mm
00 – future use
CC – Checksum
```

Example: 16**RR00591072512051100006E** Real Time Clock reply data: December 25, 2005, at 10:59:00, Saturday day of week, Day light Savings Time is active for this time of year, Clock display mode is 12 hour format, Date display mode is month/day format.

4.28.3 Write Real Time Clock Data (rw)

```
13 – Length as ASCII hex
rw – Write real time clock data into the Control
ss – second as two ASCII characters decimal, "00" to "59"
mm – Minute as two ASCII characters decimal, "00" to "59"
```

```
hh – Hour as two ASCII characters decimal, "00" to "23" 24 hour
D – Day of week as one ASCII character, "1"=Sunday to "7"=Saturday
DM – Day of month as two ASCII characters decimal, "01" to "31"
MM – Month as two ASCII characters decimal, "01" to "12"
YY – Year as two ASCII characters decimal, "00" to "99" as in 2099
00 – future use
CC – Checksum
```

Example: 13**rw305923111050500**C0 Set Real Time Clock to:
May 11, 2005 at 11:59:30 PM or 23:59:30 hours. Sunday day of week.

Acknowledge will be "RR" Real Time Clock data above.

4.29 ASCII String Text Descriptions (SD)

This request command allows automation equipment to read the text descriptions that are stored in the control.

4.29.1 Request ASCII String Text Descriptions (sd)

```
0B – Length as ASCII hex
sd – Request ASCII String Text Descriptions Command
TT – Type of string text description to request. See Type
      Table below.
NNN – Which name in the Type to be returned. ie.003=zone 3.
00 – future use
CC – Checksum
```

Example: 0B**sd010010**65 Area Name-Type 1, Area 1

4.29.2 Reply With ASCII String Text Descriptions (SD)

Reply format:

```
1B – Length as ASCII hex
SD – Reply ASCII String Text Descriptions Command
TT – Type of string text description in reply.
      See Type Table below
NNN – Which address name in the Type to be returned.
      ie.003=zone 3.
Text[16] – 16 ASCII characters, "space" character
           (20 hex) filled if less than 16 characters.
00 – future use
CC – Checksum
```

Example 1: 1B**SD01001Front DoorKeypad00**89
Area Name -Type 1, Area 1, "Front DoorKeypad"
Example 2: 1B**SD05001Garage Door 00**05
Task Name – Type 5, Task 1, "Garage Door"

Note: ***The high bit of the first character in the text string may be set as the "Show On Keypad" bit. Mask out the high bit for proper ASCII display.***

If the first character in a requested name is a "space" or less, then the next names are searched until a name is found whose first character is greater than "space" or the "Show On Keypad" bit is set. If no valid names are found, a "000" for the NNN address is returned. This speeds up the loading of names so that invalid names are not returned. M1 version 2.4.6 or later.

4.29.3 Type Table for Text Descriptions:

Type (TT)	*Range (NNN)*
0 = Zone Name	*1 – 208*
1 = Area Name	*1 – 8*
2 = User Name	*1 – 199*
3 = Keypad Name	*1 – 16*
4 = Output Name	*1 – 64, No name for 65 – 208*
5 = Task Name	*1 – 32*
6 = Telephone Name	*1 – 8*
7 = Light Name	*1 – 256*
8 = Alarm Duration Name	*1 – 12*
9 = Custom Settings	*1 – 20*
10 = Counters Names	*1 – 64*
11 = Thermostat Names	*1 – 16*
12 = Function Key 1 Name	*1 – 16, NNN = Keypad number*
13 = Function Key 2 Name	*1 - 16*
14 = Function Key 3 Name	*1 - 16*
15 = Function Key 4 Name	*1 - 16*
16 = Function Key 5 Name	*1 - 16*
17 = Function Key 6 Name	*1 – 16*
18 = Audio Zone Name	*1 – 18 for use by M1XEP*
19 = Audio Source Name	*1 – 12 for use by M1XEP*

4.30 System Trouble Status (SS)

This command allows automation equipment to poll for system trouble status. Firmware revision 4.5.4, 5.1.4 and after. This message will automatically be sent upon a trouble status change.

4.30.1 Request System Trouble Status (ss)

```
06- Length as ASCII hex
ss - Request System Trouble Status
00 - future use
CC - Checksum
```

Example: **06ss0054** Request System Trouble Status

4.30.2 Reply System Trouble Status (SS)

"0" = Normal, "1" or a hex value minus 30 hex = Trouble and/or the zone or device number.

```
28 - Length as ASCII hex
SS - Reply System Trouble Status data
AC Fail Trouble - "0" = normal, "1" = trouble
*Box Tamper Trouble - "0" = normal
Fail To Communicate Trouble - "0" = normal, "1" = trouble
```

EEProm Memory Error Trouble – "0" = normal, "1" = trouble
Low Battery Control Trouble – "0" = normal, "1" = trouble
***Transmitter Low Battery Trouble – "0" = normal**
Over Current Trouble – "0" = normal, "1" = trouble
Telephone Fault Trouble – "0" = normal, "1" = trouble
Not Used = "0"
Output 2 Trouble – "0" = normal, "1" = trouble
Missing Keypad Trouble – "0" = normal
Zone Expander Trouble – "0" = normal, "1" = trouble
Output Expander – "0" = normal, "1" = trouble
Not Used = "0"
ELKRP Remote Access – "0" = normal
Not Used = "0"
Common Area Not Armed – "0" = normal, "1" = trouble
Flash Memory Error Trouble – "0" = normal, "1" = trouble
***Security Alert – "0" = normal**
Serial Port Expander Trouble – "0" = normal
***Lost Transmitter Trouble – "0" = normal**
GE Smoke CleanMe Trouble– "0" = normal
Ethernet Trouble – "0" = normal, "1" = trouble
Not Used = "0"
Not Used = "0"
Not Used = "0"
Not Used = "0"
Not Used = "0"
Not Used = "0"
Not Used = "0"
Not Used = "0"
Display Message In Keypad Line 1
Display Message In Keypad Line 2
***Fire Trouble – "0" = normal, '1' or greater, see below.**
00 – future use
CC – Checksum

Example: **28SS1000000000000000000000000000000002F** = AC Failure Trouble

Fire Trouble zone in the "SS" command:

Take the value displayed in the Fire Trouble location which is an ASCII 'A' in the example below which equals a 65 decimal value and subtract 48 decimal from it. This equals 17 which is the fire zone in trouble. Reference the ASCII Table in section 6.0 below.

* Determining the zone number for:

- Transmitter Low Battery Trouble
- Box Tamper Trouble
- Security Alert Trouble
- Lost Transmitter Trouble
- Fire Trouble

06ss0054

28SS00000000010000000000000000000010**A**001D

Example: ASCII 'A' = 65 decimal or 41 hex (0x41)
Subtract ASCII '0' from the value.
That is: Subtract 48 decimal or 30 hex (0x30) '0'
65 – 48 = 17 or zone 17

4.31 Request Temperatures (ST)

This request command allows automation equipment to read temperatures of the temperature probes connected to zones 1 to 16, Keypad temperature from the sensor in each LCD keypad, and Thermostat temperatures. Each Group can have upto 16 temperature sensors.

Version 4.2.8 and later sends automatic temperature updates out Port 0 when any temperature device parameter changes.

4.31.1 Request Temperature format (st)

```
09 – Length as ASCII hex
st – Request Temperature Command
G  – Requested Group (ASCII): "0"=temperature probe,
      "1"=Keypads, "2"=Thermostats
NN – Which device in the group to be returned (2 decimal
      ASCII digits, 1 based).  ie."16" = device 16
00 – future use
CC – Checksum
```

Example: 09**st00100**BF Temperature Probe, Device 01
Example: 09**st10100**BE Keypad Temperature, Device 01
Example: 09**st20100**BD Thermostat, Device 01

4.31.2 Reply With Requested Temperature (ST)

Reply format:

```
0C – Length as ASCII hex
ST – Reply Temperature Command
G  – Requested Group (ASCII): "0"=temperature probe,
      "1"=Keypads, "2"=Thermostats
NN – Which device in the group to be returned (2 decimal
      ASCII digits, 1 based).  ie."16" = device 16
DDD- Temperature in ASCII decimal.
      Note:
      Group 0 - Subtract 60 from the Temperature Probe data
            connected to zone temperature data for near minimum -60
            degrees F.
      Group 1 - Subtract 40 from the Keypad Temperature data.  This
            allows for near minimum -40 degrees F.
      Group 2 - Thermostats send unadjusted temperature.
00 – future use
CC – Checksum
```

Example 1: 0C**ST001135500**5C Temperature Probe, Zone 01, Returned value = 135, subtract 60 for 75 degrees F. Maximum temperature = 150 F. Zone 01 programmed as Temperature Probe Zone.

Example 2: 0C**ST1021050058** Keypad Temperature, Keypad 02, Returned value = 105, subtract 40 for 65 degrees F.

Example 3: 0C**ST201072005**A Thermostat Temperature, Thermostat 01, Returned value = 072 degrees F. No subtract value.

4.32 System Word Messages (sp)

In all system word messages, the Data field is a 1-based 3-digit decimal number corresponding to the number of the desired word or phrase.

4.32.1 Speak Word at Voice/Siren Output (sw)

09**swDDD00**CC(CR-LF)

4.32.2 Speak Phrase at Voice/Siren Output (sp)

09**spDDD00**CC(CR-LF)

Example: Speak Word 123 at Voice/Siren Output is 09**sw12300**B7(CR-LF)
Example: Speak Phrase 123 at Voice/Siren Output is 09**sp12300**BE(CR-LF)

See 6.0 Word And Phrase Table for a listing of all voice words and phrases.

4.33 Tasks Change Update (TC)

0ATCRRR000CC

```
0A – Length as ASCII hex
TC – Zone Change Message Command
RRR – Task Number, 1 based
0 – future use
00 – future use
CC – Checksum
```

Example: 0A**TC001000**D7 Task change – Task 1, changed to activated

This transmission update option transmits the updated status whenever it changes and is enabled by setting the location TRUE in the M1 Control **Global Programming Location 38.** *Example: "Xmit Task Chgs – ASCII" (Yes or No)*

4.34 Task Activation (tn)

You can use your PC to send a command to activate a Task. Tasks are event flags that are common to the telephone remote control option 2, the keypad user menu option 1, the Whenever/Then programming, and the ASCII string programming. Any one of these methods can activate a Task (events 2001 to 2032). The Whenever/Then programming rules can then issue control commands when a Task has been activated. When all rules that are activated from the Task is serviced, the Task will be de-activated.

The data portion of the Task Activation command, DDD, is three decimal ASCII digits (1 base) corresponding to the number of the desired Task to activate. Range: 001 to 032. This value is a three digit value for future expansion.

4.34.1 Task Flag Activation

09tnDDD00CC(CR-LF)

Example: activate Task 1: *09**tn00100**C4*(CR-LF)

4.35 Thermostat Control (TR)

This command allows automation equipment to monitor and control HVAC Thermostats connected to the M1. All temperature settings are expressed in ASCII Decimal, two digits. M1 Version 4.2.6 and after.

4.35.1 Request Thermostat Data (tr)

```
08 - Length as ASCII hex
tr - Get thermostat data
NN - Thermostat 01 to 16
00 - future use
CC - Checksum
```

Example: 08**tr0100**F1 Thermostat 01, request data

4.35.2 Reply Thermostat Data (TR)

```
13 - Length as ASCII hex
TR - Reply with Thermostat Data
NN - Thermostat Number 01 to 16, 0 = invalid
M  - ThermostatMode  0=Off,1=Heat,2=Cool,3=Auto, 4=Emergency Heat
H  - ThermostatHold  Hold current temperature. 0=False, 1=True
F  - ThermostatFan   0=Fan Auto, 1=Fan turned on
TT - CurrentTemperature Current temperature, deg.F 0=invalid, 70=70
HH - HeatSetPoint Heat setpoint if in heat/auto mode, decimal
SS - CoolSetPoint Cool setpoint if in Cool/auto mode, decimal
UU - CurrentHumidity Current humidity, 01 to 99%, 0 = invalid
00 - future use
CC - Checksum
```

Example: 13**TR01200726875000**00 Thermostat 01, data reply, Cool Mode,Hold temperature = False, Fan Auto, Current Temperature = 72 F, Heat Setpoint = 68 F, Cool Setpoint = 75 F, no humidity data

4.35.3 Set Thermostat Data (ts)

```
0B - Length as ASCII hex
ts - Set Thermostat Data
NN - Thermostat Number 01 to 16
VV  - Value to set   00 to 99 range
E  - Element to set:  Set VV above with value to set in element
      0 = Mode  VV= [00=Off,01=Heat,02=Cool,03=Auto, 04=Emergency
            Heat]
      1 = Hold  VV= [Hold current temperature. 00=False, 01=True]
      2 = Fan   VV= [00=Fan Auto, 01=Fan turned on]
```

3 = Current Temperature setting from controller with thermostat else not used. Version 5.1.6
4 = CoolSetPoint VV= [*Cool setpoint if in Cool/auto mode, 01 to 99]*
5 = HeatSetPoint VV= [*Heat setpoint if in heat/auto mode, 01 to 99]*

00 – future use
CC – Checksum

Example: 0B**ts01704004**B Set Thermostat Cool Set Point element – Thermostat 01 to 70 degrees.

Reply Thermostat Data will reply to Set Thermostat Data.

4.35.4 Request - Omnistat 2 From PC to M1 ASCII Protocol (t2)

This request command allows for requesting data from theM1XSP that is connected to the HAI Omnistate 2 HVAC Thermostat. The Omnistat 2 protocol is required to build the ASCII command strings. M1 version 5.1.9 or later is required for this command.

2A – ELK Packet Length in ASCII hex, 42 length
t2 – ELK Command "t2" – PC to Omnistat command via M1.
D[36]… – 36 ASCII Hex bytes comprising 18 binary bytes of Omnistat data, including Checksum.
"0" right padded.
RA – Start/Remote Address, Bit 7 = 1
DA – Data Length/Message Type
Data – 0 to 15 binary data bytes, converted to 0 to 30 ASCII Hex bytes
CKSUM – Omnistat 2 checksum is last byte of Omnistat 2 data before padding.
00 – Future use
CC – ELK Checksum
CRLF

4.35.5 Reply - M1 to PC with Omnistat 2 ASCII Hex data (T2)

This is the reply from the M1XSP connected to the HAI Omnistat 2 HVAC Thermostat. M1 version 5.1.9 or later is required for this command.

2A – ELK Packet Length in ASCII hex, 42 length
T2 – ELK Command "T2", Omnistat 2 to PC command..
D[36]… – 36 ASCII Hex bytes comprising 18 binary bytes of Omnistat 2 data, including Checksum.
"0" right padded.
RA – Start/Remote Address, Bit 7 = 0
DA – Data Length/Message Type
Data – 0 to 15 binary data bytes, converted to 0 to 30 ASCII Hex bytes
CKSUM – Omnistat 2 checksum is last byte of data before padding.
00 – Future use
CC – ELK Checksum
CRLF

4.36 Version Number of M1 and M1XEP (VN)

The vn command requests the M1's version number, and the VN command replies with the version number data. If an M1XEP is connected to the M1, the M1XEP's version number will also be included. Available in M1 version 4.1.12 or 5.1.12 and later. M1XEP 1.3.2 or later.

4.36.1 Request M1 Version Number (vn)

```
06 – Length as ASCII hex
vn – Request the M1's version number data
00 – future use
CC – Checksum
```

Example: 06**vn00**56 Request the M1's version number.

4.36.2 Reply M1 Version Number (VN)

```
36 – Length as ASCII hex
VN – Reply with the M1's version number data
UUMMLL  M1 version, UU=Most,MM=Middle,LL=Least Significant Version
      Number,ASCII Hex as UU.MM.LL version
uummll – M1XEP version as ASCII hex, uu.mm.ll
D[36] – 36 ASCII zeros for future use
00 – future use
CC – Checksum
```

Example: 36**VN05010C0103020000000000000000000000000000000000000000**74
M1 version number 05.01.12(0C), M1XEP version 01.03.02

4.37 Request Valid User Code Areas (UA)

This request command allows automation equipment to send a user code to the control and have returned what areas the code is valid in. The returned value is an 8 bit masked value with bit 0 corresponding to area 1, up to bit 7 corresponding to area 8. If the returned value is 0, then the code is not valid in any area. M1 Version 4.2.5 , type of code is in Version 4.3.6 and after.

4.37.1 Request Valid User Code Areas (ua)

```
0C – Length as ASCII hex
ua – Request valid user code areas
DDDDDD – 6 bytes of user code data. 4 digit codes are left padded
            with zeros.
00 – future use
CC – Checksum
```

Example 1: 0C**ua0034560025** Request valid user code areas for code 3456.

Example 2: 0C**ua1234560022** Request valid user code areas for code 123456.

4.37.2 Reply With Valid User Code Areas (UA)

```
19 – Length as ASCII hex
UA – Returned valid user code areas
DDDDDD – 6 bytes of user code data that was requested.
NN – 8 bits of Hex Area Mask Data, using two ASCII
      Hex bytes, 0-9,A-F. Bit 0 = Area 1, code valid if set.
UUUUUUUU – 8 bytes diagnostic data, factory use only.
N – Number of digits in user code. "4" or "6" digits, Ver 4.2.8
L – Type of code, "1"= User, "2"= Master, "3" = Installer, "4" =
   ELKRP, Ver 4.3.6 or later
T – F = Fahrenheit temperature mode, C = Celcius temperature mode.
   Version 4.3.9 or later
00 – future use
CC – Checksum
```

Example: *19**UA123456C30000000041F00**CA* Returned value = Code 123456 is valid in Areas 1, 2, 7, and 8 (0xC3), 4 digit user codes, User Code Type, Fahrenheit Temperature Mode.

4.38 Zone Change Update (ZC)

0AZCZZZS00CC

```
0A – Length as ASCII hex
ZC – Zone Change Message Command
ZZZ – Zone Number, 1 based
S – Zone Status, ASCII HEX, see Zone Status Table below
00 – future use
CC – Checksum
```

Zone Status Table, S Value, hex lower nibble

Hex Value			
0=	Normal	Unconfigured	0000
1=	Normal	Open	0001
2=	Normal	EOL	0010
3=	Normal	Short	0011
4=	not used		
5=	Trouble	Open	0101
6=	Trouble	EOL	0110
7=	Trouble	Short	0111
8=	not used		
9=	Violated	Open	1001
A(10)=	Violated	EOL	1010
B(11)=	Violated	Short	1011
C(12)=	not used		
D(13)=	Bypassed	Open	1101
E(14)=	Bypassed	EOL	1110
F(15)=	Bypassed	Short	1111

Example: 0A**ZC002200**CE Zone change – zone 2, restored to Normal EOL

This transmission update option transmits the updated status whenever it changes and is enabled by setting the location TRUE in the M1 Control **Global Programming Location 36.** *Example: "Xmit Zone Chgs-ASCII" (Yes or No)*

4.39 Zone Status Messages (ZB)

You can send a query to the control panel for its zone status (open, closed, trouble, alert, bypassed). The control panel will respond with a Zone Status or Zone Partition Status message for all 208 zones.

In addition, the control panel can be programmed with Global Programming Location 30 to automatically send zone status messages whenever there is a change of status.

4.39.1 Zone Bypass Request (zb)

This command allows for bypassing/unbypassing a zone. Zone = 000 will unbypass all burglar zones in the. Zone = 999 will bypass all violated burglar zones. Area to bypass/unbypass is required if Zone equals 000 or 999 otherwise it is ignored.

```
10  – Length as ASCII hex
zb – Request zone bypass
ZZZ – Zone number
A – Area to change bypass in if zone = 000 or 999, otherwise not
      referenced.
C[6] – Pin Code array valid in the area that the zone is valid in.
      This is an array of 6 ascii digits.  Array index 0 is the
      most significant digit and array index 5 is the least
      significant digit of the PIN Code.
00 – future use
CC – Checksum
```

Example: 10**zb0051003456006**B Request zone bypass/unbypass toggle. Area 1. Bypass zone 5 with user code 003456

4.39.2 Reply With Bypassed Zone State (ZB)

```
0A – Length as ASCII hex
ZB – Returned Bypassed Zone Command
ZZZ – Zone number
N – Zone bypass state.  '0' = unbypassed, '1' = bypassed
00 – future use
CC – Checksum
```

Example: 0A**ZB123100**CC Returned value = zone 123 is bypassed.

4.39.3 Zone Partition Request (zp)

06**zp00**50(CR-LF)

The Control panel responds with a Zone Partition Report which tells what Area is assigned to each zone.

4.39.4 Zone Partition Report (ZP)

D6ZPD…00CC(CR-LF)

The control panel sends this message in response to a Zone Partition Request. The data portion, D, of this message is 208 characters long, one character for each zone in order. The value will be from 1-8.

Example: a Zone Partition Report for a system in which Zone 1 is assigned to Partition 2. Zone 2 is assigned to no partition, and Zone 3 is assigned to Partition 8, would begin D7ZP208....

4.39.5 Zone Status Request (zs)

06**zs00**4D(CR-LF)

The control panel responds with a Zone Status Report.

Note: This message should be sent only when an initial connection is made with the control panel. It is not intended to be used as a 'polling' command. The control panel can be programmed to send zone and system status messages whenever the status changes with Global Programming Location 33 – 37 in the M1 Control.

4.39.6 Zone Status Report (ZS)

D6ZSD...000CC(CR-LF)

The control panel sends this message in response to a Zone Status Request. The data portion of this message is 208 characters long, one character for each zone in order. Each character is the *sum* of all applicable status values, expressed in hexadecimal, using ASCII characters 0-9 and A-F.

Status Values:

Bits 0 & 1 binary values are the physical zone state

- 0 Unconfigured
- 1 Open
- 2 EOL
- 3 Short

Bits 2 & 3 binary values are the logical zone status

- 0 Normal
- 1 Trouble
- 2 Violated
- 3 Bypassed

4.39.7 Zone Status Table

Hex Value			
0=	Normal	Unconfigured	0000
1=	Normal	Open	0001
2=	Normal	EOL	0010

3=	Normal	Short	0011	
4=	not used			
5=	Trouble	Open	0101	
6=	Trouble	EOL	0110	
7=	Trouble	Short	0111	
8=	not used			
9=	Violated	Open	1001	
A(10)=	Violated	EOL	1010	
B(11)=	Violated	Short	1011	
C(12)=	Soft Bypassed		1000	temporary bypass of zone until normal
D(13)=	Bypassed	Open	1101	not implemented through M1 version 4.2.6
E(14)=	Bypassed	EOL	1110	not implemented through M1 version 4.2.6
F(15)=	Bypassed	Short	1111	not implemented through M1 version 4.2.6

Example: a Zone Status Report for a system in which:
Zone 1 is Normal, EOL
Zone 2 is Trouble, Open
the rest Normal, Unconfigured

D6ZS 2 5 0 0....

4.40 Zone Definition (ZD)

This command allows automation equipment to request the zone definitions. M1 Version 4.2.6 and after.

4.40.1 Request Zone Definition (zd)

```
06 – Length as ASCII hex
zd – Get zone definition data
00 – future use
CC – Checksum
```

Example: 06**zd00**5C Zone Definition, request data

4.40.2 Reply Zone Definition Data (ZD)

```
D6 – Length as ASCII hex
ZD – Reply with zone definition data
D[208]  - Array of all 208 zones with the zone definition. Subtract
      48 decimal or 0x30 hex from each array element to get the
      zone definition number as described below.
00 – future use
CC – Checksum
```

Example: D6**ZD123….00**CC Zone 1 Definition = Burglar Entry/Exit 1, Zone Definition 2 = Burglar Entry/Exit 2, Zone Definition 3 = Burglar Perimeter Instant…

4.40.3 Zone Definition Number List: Character - Definition Number

‘0’ – 00 = Disabled
‘1’ – 01 = Burglar Entry/Exit 1
‘2’ – 02 = Burglar Entry/Exit 2
‘3’ – 03 = Burglar Perimeter Instant
‘4’ – 04 = Burglar Interior
‘5’ – 05 = Burglar Interior Follower
‘6’ – 06 = Burglar Interior Night
‘7’ – 07 = Burglar Interior Night Delay
‘8’ – 08 = Burglar 24 Hour
‘9’ – 09 = Burglar Box Tamper
‘:’ - 10 = Fire Alarm
‘;’ - 11 = Fire Verified
‘<’ - 12 = Fire Supervisory
‘=’ - 13 = Aux Alarm 1
‘>’ - 14 = Aux Alarm 2
‘?’ – 15 = Keyfob
‘@’ - 16 = Non Alarm
‘A’ – 17 = Carbon Monoxide
‘B’ – 18 = Emergency Alarm
‘C’ – 19 = Freeze Alarm
‘D’ – 20 = Gas Alarm
‘E’ - 21 = Heat Alarm
‘F’ - 22 = Medical Alarm
‘G’ - 23 = Police Alarm
‘H’ - 24 = Police No Indication
‘I’ - 25 = Water Alarm
‘J’ - 26 = Key Momentary Arm / Disarm
‘K’ - 27 = Key Momentary Arm Away
‘L’ - 28 = Key Momentary Arm Stay
‘M’ - 29 = Key Momentary Disarm
‘N’ - 30 = Key On/Off
‘O’ - 31 = Mute Audibles
‘P’ - 32 = Power Supervisory
‘Q’ - 33 = Temperature
‘R’ - 34 = Analog Zone
‘S’ - 35 = Phone Key
‘T’ - 36 = Intercom Key

4.41 Zone Analog Voltage (ZV)

This command allows automation equipment to request a zone analog voltage level. M1 Version 4.2.8 and after.

4.41.1 Request Zone Voltage (zv)

```
09 – Length as ASCII hex
zv – Get command for zone analog voltage data
ZZZ – Zone number 001 to 208 as 3 ASCII characters decimal
00 – future use
CC – Checksum
```

Example: 09**zv12300**B1 Zone 123 analog voltage request data

4.41.2 Reply Zone Analog Voltage Data (ZV)

```
0C – Length as ASCII hex
ZV – Reply with zone definition data
ZZZ – Zone number 001 to 208 as 3 ASCII characters decimal
DDD – Zone voltage data as 3 decimal ASCII characters.
   Divide data value by 10.  Right character is the tenths
   decimal place.
00 – future use
CC – Checksum
```

Example: 0C**ZV123072200**4E Zone 123 , voltage is 7.2 volts

4.41.3 Reply Programming Of Insteon Lighting Device Data (IP)

```
0A – Length as ASCII hex
IP – Reply Programming of Insteon lighting device data
aaa – Starting Lighting device number 001 to 192
n   - Number of devices being programmed, 1-8
00 – future use
CC – Checksum
```

Example: 0A**IP001400**D1

Reply Acknowledge Programming Insteon lighting device ID data for device 001 to 004.

Note: Insteon Lighting Device 193 to 256 corresponds to Insteon Groups 1 – 64.

5. Interpreting M1/EZ8 Event Log Extended Data Information

M1 and EZ8 event log data may be read from the control using the "ld" command. If enabled (via programming G35), the control will transmit events out the serial port as they are written to the log. Some events store extended information such as user, zone, or keypad number. The following table lists those events that may contain extended information. If an event is not listed in the table, its extended info does not apply and should be ignored. The "Ext Info Type" column references Table 2 below which describes how to interpret the extended data.

Event	Ext Info Type
1001 - 1110	1
1128 - 1129	1
1131	1
1132 – 1135	3
1136	4
1141	3
1144 - 1156	1
1161	3
1173 - 1238	2
1239 - 1240	1
1294 – 1295	2
1297	2
1298	1
1299 – 1301	2
1303	2
1304	1
1313 – 1329	2
1350	1
1351 – 1352	2
1356	1
1365 – 1366	1
1367	3
1377	3
1378	5
1379	2
1381 – 1382	1
1385 – 1386	1
4001 – 4208	1
5001 – 5208	1
6001 – 6208	1
7001 – 7208	1

Table 1
Log Events with extended information

Type	Meaning	Interpretation of Ext Info Field in Log Entries
1	Zone Number or Keypad Number and F-Key	If 1-208, interpret as zone number. If > 400, 401=KP1-F1, 402=KP1-F2, … 407=KP2-F1, … 496=KP16-F6.
2	User Number	If control's firmware is older than 4.4.0, the ext info is 1-99; and 101=Installer, 102=ElkRP, 103=NoCode. If control's firmware is 4.4.0 or higher, the ext info is 1-199; and 201=Installer, 202=ElkRP, 203=NoCode.
3	Expander Type	For events of this type, ignore the "Area" field on the log entry. It does not apply. If the event is 1367 or the ext info is 0, this log entry applies to the control. Otherwise: 1 = Keypad 2 = Input Expander 3 = Output Expander 4 = *Reserved* 5 = Serial Expander
4	EEPROM Address	Address of a memory location in the EEPROM.
5	Voice message to play when dialing phone #	0 = play default message (VM278) 209-323 = play VM209-VM323

Table 2 – How to interpret extended information

6. Word And Phrase Table

6.1 Words

1-_Custom1
2-_Custom2
3-_Custom3
4-_Custom4
5-_Custom5
6-_Custom6
7-_Custom7
8-_Custom8
9-_Custom9
10-_Custom10
11-Not Implemented
12-Not Implemented
13-Not Implemented
14-Not Implemented
15-Not Implemented
16-Not Implemented
17-Not Implemented
18-Not Implemented
19-Not Implemented
20-Not Implemented
21-Zero.wav
22-One.wav
23-Two.wav
24-Three.wav
25-Four.wav
26-Five.wav
27-Six.wav
28-Seven.wav
29-Eight.wav
30-Nine.wav
31-Ten.wav
32-Eleven.wav
33-Twelve.wav
34-Thirteen.wav
35-Fourteen.wav
36-Fifteen.wav
37-Sixteen.wav
38-Seventeen.wav
39-Eighteen.wav
40-Nineteen.wav
41-Twenty.wav
42-Thirty.wav
43-Fourty.wav
44-Fifty.wav
45-Sixty.wav
46-Seventy.wav
47-Eighty.wav
48-Ninety.wav
49-Hundred.wav
50-Thousand.wav
51-[200ms_Silence].wav
52-[500ms_Silence].wav
53-[800hz_Tone].wav
54-A.wav
55-Access.wav
56-Acknowledged.wav
57-AC_power.wav
58-Activate.wav
59-Activated.wav
60-Active.wav
61-Adjust.wav
62-Air.wav
63-Alarm.wav
64-Alert.wav
65-All.wav
66-AM.wav
67-An.wav
68-And.wav
69-Answer.wav
70-Any.wav
71-Are.wav
72-Area.wav
73-Arm.wav
74-Armed.wav
75-At.wav
76-Attic.wav
77-Audio.wav
78-Auto.wav
79-Authorized.wav
80-Automatic.wav
81-Automation.wav
82-Auxiliary.wav
83-Away.wav
84-B.wav
85-Back.wav
86-Barn.wav
87-Basement.wav
88-Bathroom.wav
89-Battery.wav
90-Bedroom.wav
91-Been.wav
92-Bell.wav
93-Bottom.wav
94-Break.wav
95-Breakfast.wav
96-Bright.wav
97-Building.wav
98-Burglar.wav
99-Button.wav
100-By.wav
101-Bypassed.wav
102-Cabinet.wav
103-Call.wav
104-Camera.wav
105-Cancel.wav
106-Carbon_monoxide.wav
107-Card.wav
108-Center.wav
109-Central.wav
110-Change.wav
111-Check.wav
112-Chime.wav
113-Circuit.wav
114-Clear.wav
115-Closed.wav
116-Closet.wav
117-Code.wav
118-Cold.wav
119-Condition.wav
120-Connect.wav
121-Control.wav
122-Cool.wav
123-Cooling.wav
124-Corner.wav
125-Crawlspace.wav
126-Danger.wav
127-Day.wav
128-Deck.wav
129-Decrease.wav
130-Defective.wav
131-Degrees.wav
132-Delay.wav
133-Den.wav
134-Denied.wav
135-Detected.wav
136-Detector.wav
137-Device.wav
138-Dial.wav
139-Dialing.wav
140-Dim.wav
141-Dining_room.wav
142-Disable.wav
143-Disarm.wav
144-Disarmed.wav
145-Dock.wav
146-Door.wav
147-Doors.wav
148-Down.wav
149-Driveway.wav
150-East.wav
151-Emergency.wav
152-Enable.wav
153-End.wav
154-Energy.wav
155-Enrollment.wav
156-Enter.wav
157-Entering.wav
158-Entertainment.wav
159-Enter_the.wav
160-Entry.wav
161-Environment.wav
162-Equipment.wav
163-Error.wav
164-Evacuate.wav
165-Event.wav
166-Exercise.wav
167-Expander.wav
168-Exit.wav
169-Exterior.wav
170-F.wav
171-Fail.wav
172-Failure.wav
173-Family_room.wav
174-Fan.wav
175-Feed.wav
176-Fence.wav
177-Fire.wav
178-First.wav
179-Flood.wav
180-Floor.wav
181-Followed.wav
182-Force.wav
183-Fountain.wav
184-Foyer.wav
185-Freeze.wav
186-Front.wav
187-Full.wav
188-Furnace.wav
189-Fuse.wav
190-Game.wav
191-Garage.wav
192-Gas.wav
193-Gate.wav
194-Glass.wav
195-Go.wav
196-Good.wav
197-Goodbye.wav
198-Great.wav
199-Group.wav
200-Guest.wav
201-Gun.wav
202-Hall.wav
203-Hallway.wav
204-Hanging_up.wav
205-Hang_up.wav
206-Has.wav
207-Has_Expired.wav
208-Have.wav
209-Hear_menu_options.wav
210-Heat.wav
211-Help.wav
212-High.wav
213-Hold.wav
214-Home.wav
215-Hot.wav
216-Hottub.wav
217-House.wav
218-Humidity.wav
219-HVAC.wav
220-If.wav
221-Immediately.wav
222-In.wav
223-Inches.wav
224-Increase.wav
225-Inner.wav
226-Input.wav
227-Inside.wav
228-Instant.wav
229-Interior.wav
230-In_The.wav
231-Intruder.wav
232-Intrusion.wav
233-Invalid.wav
234-Is.wav
235-Is_about_to_expire.wav
236-Is_active.wav
237-Is_armed.wav
238-Is_canceled.wav
239-Is_closed.wav
240-Is_disarmed.wav
241-Is_low.wav
242-Is_off.wav
243-Is_OK.wav
244-Is_on.wav
245-Is_open.wav
246-Jacuzzi.wav
247-Jewelry.wav
248-Keep.wav
249-Key.wav
250-Keypad.wav
251-Kitchen.wav
252-Lamp.wav
253-Laundry.wav
254-Lawn.wav
255-Leak.wav
256-Leave.wav

257-Left.wav
258-Less.wav
259-Level.wav
260-Library.wav
261-Light.wav
262-Lights.wav
263-Line.wav
264-Living_room.wav
265-Loading.wav
266-Lobby.wav
267-Location.wav
268-Lock.wav
269-Low.wav
270-Lower.wav
271-M.wav
272-Machine.wav
273-Mail.wav
274-Main.wav
275-Mains.wav
276-Manual.wav
277-Master.wav
278-Max.wav
279-Media.wav
280-Medical.wav
281-Medicine.wav
282-Memory.wav
283-Menu.wav
284-Message.wav
285-Middle.wav
286-Minute.wav
287-Missing.wav
288-Mode.wav
289-Module.wav
290-Monitor.wav
291-More.wav
292-Motion.wav
293-Motor.wav
294-Next.wav
295-Night.wav
296-No.wav
297-Normal.wav
298-North.wav
299-Not.wav
300-Notified.wav
301-Now.wav
302-Number.wav
303-Nursery.wav
304-Of.wav
305-Off.wav
306-Office.wav
307-Oh.wav
308-OK.wav
309-On.wav
310-Online.wav
311-Only.wav
312-Open.wav
313-Operating.wav
314-Option.wav
315-Or.wav
316-Other.wav
317-Out.wav
318-Outlet.wav
319-Output.wav
320-Outside.wav
321-Over.wav
322-Overhead.wav
323-Panel.wav
324-Panic.wav
325-Parking.wav
326-Partition.wav
327-Patio.wav
328-Pause.wav
329-Perimeter.wav
330-Personal.wav
331-Phone.wav
332-Place.wav
333-Play.wav
334-Please.wav
335-Plus.wav
336-PM.wav
337-Police.wav
338-Pool.wav
339-Porch.wav
340-Port.wav
341-Pound.wav
342-Pounds.wav
343-Power.wav
344-Press.wav
345-Pressure.wav
346-Problem.wav
347-Program.wav
348-Protected.wav
349-Pump.wav
350-Radio.wav
351-Raise.wav
352-Ready.wav
353-Rear.wav
354-Receiver.wav
355-Record.wav
356-Recreation.wav
357-Relay.wav
358-Remain_calm.wav
359-Remote.wav
360-Repeat.wav
361-Report.wav
362-Reporting.wav
363-Reset.wav
364-Restored.wav
365-Return.wav
366-Right.wav
367-Roof.wav
368-Room.wav
369-Running.wav
370-Safe.wav
371-Save.wav
372-Screen.wav
373-Second.wav
374-Secure.wav
375-Security.wav
376-Select.wav
377-Sensor.wav
378-Serial.wav
379-Service.wav
380-Set.wav
381-Setback.wav
382-Setpoint.wav
383-Setting.wav
384-Shed.wav
385-Shipping.wav
386-Shock.wav
387-Shop.wav
388-Shorted.wav
389-Shunted.wav
390-Side.wav
391-Silence.wav
392-Siren.wav
393-Sliding.wav
394-Smoke.wav
395-Someone.wav
396-South.wav
397-Spare.wav
398-Speaker.wav
399-Sprinkler.wav
400-Stairs.wav
401-Stairway.wav
402-Star.wav
403-Start.wav
404-Status.wav
405-Stay.wav
406-Stock.wav
407-Stop.wav
408-Storage.wav
409-Storm.wav
410-Studio.wav
411-Study.wav
412-Sump.wav
413-Sun.wav
414-Switch.wav
415-System.wav
416-Tamper.wav
417-Tank.wav
418-Task.wav
419-Telephone.wav
420-Television.wav
421-Temperature.wav
422-Test.wav
423-Thank_you.wav
424-That.wav
425-The.wav
426-Theater.wav
427-Thermostat.wav
428-Third.wav
429-Time.wav
430-Toggle.wav
431-Top.wav
432-Transformer.wav
433-Transmitter.wav
434-Trespassing.wav
435-Trouble.wav
436-Turn.wav
437-Twice.wav
438-Type.wav
439-Under.wav
440-Unit.wav
441-Unlocked.wav
442-Unoccupied.wav
443-Up.wav
444-User.wav
445-Utility.wav
446-Vacation.wav
447-Valve.wav
448-Video.wav
449-Violated.wav
450-Visitor.wav
451-Wake_up.wav
452-Walk.wav
453-Wall.wav
454-Warehouse.wav
455-Warning.wav
456-Water.wav
457-Way.wav
458-Welcome.wav
459-West.wav
460-What.wav
461-When.wav
462-Where.wav
463-Will.wav
464-Window.wav
465-Windows.wav
466-With.wav
467-Work.wav
468-Yard.wav
469-Year.wav
470-You.wav
471-Zone.wav
472-Zones.wav
473-[Intruder_Message].wav

6.2 Phrases

The (vm..) is the voice phrase number. These are six (6) word phrases that may be customized using the ELK-RP Software.

SilenceDelay (vm0)
Zone 1 (vm1)
Zone 2 (vm2)
Zone 3 (vm3)
Zone 4 (vm4)
Zone 5 (vm5)
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Zone 206 (vm206)
Zone 207 (vm207)
Zone 208 (vm208)
Keypad Panic Alarm (vm209)
AC Power Failure (vm210)
Telephone Line Trouble (vm211)
Alarm Silence (vm212)
Alarm Acknowledged (vm213)
(Area X) Is Armed Away Mode (vm214)
(Area X) Is Armed Stay Mode (vm215)
(Area X) Is Armed Stay Instant (vm216)
(Area X) Is Armed Night Mode (vm217)
(Area X) Is Armed Night Instant (vm218)
(Area X) Is Armed Vacation Mode (vm219)
(Area X) Exit Delay Is About To Expire (vm220)
Auto Arm In 1 Minute (vm221)
Exit Error (vm222)
Closing Ring Back (vm223)
Audio Module Missing (vm224)
System Is Armed (vm225)
(Area X) Is Disarmed (vm226)
Input Expander Missing (vm227)
Keypad Missing (vm228)
No Zones Violated (vm229)
Output Expander Missing (vm230)
Welcome System Is On (vm231)
Start Module Enrollment (vm232)
Stop Module Enrollment (vm233)
System Battery Is Low (vm234)
Press Transmitter Button (vm235)
Receiver Program Invalid (vm236)
Test Volume (vm237)
Say Time (vm238)
Miscellaneous 1 (vm239)
Miscellaneous 2 (vm240)
Miscellaneous 3 (vm241)
Miscellaneous 4 (vm242)
Miscellaneous 5 (vm243)
Miscellaneous 6 (vm244)
Miscellaneous 7 (vm245)
Miscellaneous 8 (vm246)
Miscellaneous 9 (vm247)
Miscellaneous 10 (vm248)
Enter Pass Code (vm249)
Access Allowed (vm250)
System Not Ready (vm251)
Select Task Number (vm252)
Select Light Number (vm253)
Select Output Number (vm254)
Select Temperature Sensor (vm255)
Select Keypad Number (vm256)
Select Thermostat Number (vm257)
Press To Change (vm258)
Press To End Message (vm259)
Phone Menu 0 - Hear Menu Options (vm260)
Phone Menu 1 - Arm/Disarm Status (vm261)
Phone Menu 2 - Automation Control (vm262)
Automation Menu 1 - Automation Task (vm263)
Automation Menu 2 - Lighting Control (vm264)
Automation Menu 3 - Output Control (vm265)
Automation Menu 4 - Temperature Sensor (vm266)
Automation Menu 5 - Keypad Temperature (vm267)
Automation Menu 6 - Thermostat Temperature (vm268)
Phone Menu 3 - System Summary (vm269)
Phone Menu 4 - Zone Status (vm270)
Phone Menu 7 - Page (vm271)
Phone Menu 8 - Adjust Volume (vm272)
Phone Menu 9 - Exit and Hangup (vm273)
Phone Arming (vm274)

Phone Disarm (vm275)
Phone Hangup (vm276)
To Turn On (vm277)
To Turn Off (vm278)
Phone Arm Level 1 - Away Mode (vm279)
Phone Arm Level 2 - Stay Mode (vm280)
Phone Arm Level 3 - Stay Instant Mode (vm281)
Phone Arm Level 4 - Night Mode (vm282)
Phone Arm Level 5 - Night Instant Mode (vm283)
Phone Arm Level 6 - Vacation Mode (vm284)
Fire (vm285)
Medical (vm286)
Police (vm287)
Emergency (vm288)
Burglary (vm289)
Carbon Monoxide (vm290)
Freeze (vm291)
Gas (vm292)
Heat (vm293)
Water (vm294)
Auxiliary 1 (vm295)
Auxiliary 2 (vm296)
Key Switch (vm297)
Fire Message 1 (vm298)
Fire Message2 (vm299)
Burglary Message 1 (vm300)
Burglary Message 2 (vm301)
Alarm (vm302)
Alarm Memory (vm303)
Bypassed (vm304)
Auto Bypassed (vm305)
Transmitter Low Battery (vm306)
Trouble (vm307)
Violated (vm308)
Normal (vm309)
On (vm310)
Off (vm311)
Say Name of Area 1 (vm312)
Say Name of Area 2 (vm313)
Say Name of Area 3 (vm314)
Say Name of Area 4 (vm315)
Say Name of Area 5 (vm316)
Say Name of Area 6 (vm317)
Say Name of Area 7 (vm318)
Say Name of Area 8 (vm319)

7. ASCII Table

Dec	Hex	Ctl	Chr	Dec	Hex	Chr	Dec	Hex	Chr	Dec	Hex	Chr
0	00h	NUL	^@	32	20h	SP	64	40h	@	96	60h	`
1	01h	SOH	^A	33	21h	!	65	41h	A	97	61h	a
2	02h	STX	^B	34	22h	"	66	42h	B	98	62h	b
3	03h	ETX	^C	35	23h	#	67	43h	C	99	63h	c
4	04h	EOT	^D	36	24h	$	68	44h	D	100	64h	d
5	05h	ENQ	^E	37	25h	%	69	45h	E	101	65h	e
6	06h	ACK	^F	38	26h	&	70	46h	F	102	66h	f
7	07h	BEL	^G	39	27h	'	71	47h	G	103	67h	g
8	08h	BS	^H	40	28h	(	72	48h	H	104	68h	h
9	09h	HT	^I	41	29h	)	73	49h	I	105	69h	i
10	0Ah	LF	^J	42	2Ah	*	74	4Ah	J	106	6Ah	j
11	0Bh	VT	^K	43	2Bh	+	75	4Bh	K	107	6Bh	k
12	0Ch	FF	^L	44	2Ch	,	76	4Ch	L	108	6Ch	l
13	0Dh	CR	^M	45	2Dh	-	77	4Dh	M	109	6Dh	m
14	0Eh	SO	^N	46	2Eh	.	78	4Eh	N	110	6Eh	n
15	0Fh	SI	^O	47	2Fh	/	79	4Fh	O	111	6Fh	o
--	---	---	--	--	---	--	--	---	-	---	---	---
16	10h	DLE	^P	48	30h	0	80	50h	P	112	70h	p
17	11h	DC1	^Q	49	31h	1	81	51h	Q	113	71h	q
18	12h	DC2	^R	50	32h	2	82	52h	R	114	72h	r
19	13h	DC3	^S	51	33h	3	83	53h	S	115	73h	s
20	14h	DC4	^T	52	34h	4	84	54h	T	116	74h	t
21	15h	NAK	^U	53	35h	5	85	55h	U	117	75h	u
22	16h	SYN	^V	54	36h	6	86	56h	V	118	76h	v
23	17h	ETB	^W	55	37h	7	87	57h	W	119	77h	w
24	18h	CAN	^X	56	38h	8	88	58h	X	120	78h	x
25	19h	EM	^Y	57	39h	9	89	59h	Y	121	79h	y
26	1Ah	SUB	^Z	58	3Ah	:	90	5Ah	Z	122	7Ah	z
27	1Bh	ESC	^[	59	3Bh	;	91	5Bh	[	123	7Bh	{
28	1Ch	FS	^\	60	3Ch	<	92	5Ch	\	124	7Ch	|
29	1Dh	GS	^]	61	3Dh	=	93	5Dh	]	125	7Dh	}
30	1Eh	RS	^^	62	3Eh	>	94	5Eh	^	126	7Eh	~
31	1Fh	US	^_	63	3Fh	?	95	5Fh	_	127	7Fh	DEL

8. Event Table

1000 = No Event
1001 = FIRE ALARM
1002 = FIRE SUPERVISORY ALARM
1003 = BURGLAR ALARM, ANY AREA
1004 = MEDICAL ALARM, ANY AREA
1005 = POLICE ALARM, ANY AREA
1006 = AUX1 24 HR, ANY AREA
1007 = AUX2 24 HR, ANY AREA
1008 = CARBON MONOXIDE ALARM, ANY AREA
1009 = EMERGENCY ALARM, ANY AREA
1010 = FREEZE ALARM, ANY AREA
1011 = GAS ALARM, ANY AREA
1012 = HEAT ALARM, ANY AREA
1013 = WATER ALARM, ANY AREA
1014 = ALARM, ANY AREA
1015 = BURGLAR ALARM IN AREA 1
1016 = BURGLAR ALARM IN AREA 2
1017 = BURGLAR ALARM IN AREA 3
1018 = BURGLAR ALARM IN AREA 4
1019 = BURGLAR ALARM IN AREA 5
1020 = BURGLAR ALARM IN AREA 6
1021 = BURGLAR ALARM IN AREA 7
1022 = BURGLAR ALARM IN AREA 8
1023 = MEDICAL ALARM IN AREA 1
1024 = MEDICAL ALARM IN AREA 2
1025 = MEDICAL ALARM IN AREA 3
1026 = MEDICAL ALARM IN AREA 4
1027 = MEDICAL ALARM IN AREA 5
1028 = MEDICAL ALARM IN AREA 6
1029 = MEDICAL ALARM IN AREA 7
1030 = MEDICAL ALARM IN AREA 8
1031 = POLICE ALARM IN AREA 1
1032 = POLICE ALARM IN AREA 2
1033 = POLICE ALARM IN AREA 3
1034 = POLICE ALARM IN AREA 4
1035 = POLICE ALARM IN AREA 5
1036 = POLICE ALARM IN AREA 6
1037 = POLICE ALARM IN AREA 7
1038 = POLICE ALARM IN AREA 8
1039 = AUX1 24 HR IN AREA 1
1040 = AUX1 24 HR IN AREA 2
1041 = AUX1 24 HR IN AREA 3
1042 = AUX1 24 HR IN AREA 4
1043 = AUX1 24 HR IN AREA 5
1044 = AUX1 24 HR IN AREA 6
1045 = AUX1 24 HR IN AREA 7
1046 = AUX1 24 HR IN AREA 8
1047 = AUX2 24 HR IN AREA 1
1048 = AUX2 24 HR IN AREA 2
1049 = AUX2 24 HR IN AREA 3
1050 = AUX2 24 HR IN AREA 4
1051 = AUX2 24 HR IN AREA 5
1052 = AUX2 24 HR IN AREA 6
1053 = AUX2 24 HR IN AREA 7
1054 = AUX2 24 HR IN AREA 8
1055 = CO ALARM IN AREA 1
1056 = CO ALARM IN AREA 2
1057 = CO ALARM IN AREA 3
1058 = CO ALARM IN AREA 4
1059 = CO ALARM IN AREA 5
1060 = CO ALARM IN AREA 6
1061 = CO ALARM IN AREA 7
1062 = CO ALARM IN AREA 8
1063 = EMERGENCY ALARM IN AREA 1
1064 = EMERGENCY ALARM IN AREA 2
1065 = EMERGENCY ALARM IN AREA 3
1066 = EMERGENCY ALARM IN AREA 4
1067 = EMERGENCY ALARM IN AREA 5
1068 = EMERGENCY ALARM IN AREA 6
1069 = EMERGENCY ALARM IN AREA 7
1070 = EMERGENCY ALARM IN AREA 8
1071 = FREEZE ALARM IN AREA 1
1072 = FREEZE ALARM IN AREA 2
1073 = FREEZE ALARM IN AREA 3
1074 = FREEZE ALARM IN AREA 4
1075 = FREEZE ALARM IN AREA 5
1076 = FREEZE ALARM IN AREA 6
1077 = FREEZE ALARM IN AREA 7
1078 = FREEZE ALARM IN AREA 8
1079 = GAS ALARM IN AREA 1
1080 = GAS ALARM IN AREA 2
1081 = GAS ALARM IN AREA 3
1082 = GAS ALARM IN AREA 4
1083 = GAS ALARM IN AREA 5
1084 = GAS ALARM IN AREA 6
1085 = GAS ALARM IN AREA 7
1086 = GAS ALARM IN AREA 8
1087 = HEAT ALARM IN AREA 1
1088 = HEAT ALARM IN AREA 2
1089 = HEAT ALARM IN AREA 3
1090 = HEAT ALARM IN AREA 4
1091 = HEAT ALARM IN AREA 5
1092 = HEAT ALARM IN AREA 6
1093 = HEAT ALARM IN AREA 7
1094 = HEAT ALARM IN AREA 8
1095 = WATER ALARM IN AREA 1
1096 = WATER ALARM IN AREA 2
1097 = WATER ALARM IN AREA 3
1098 = WATER ALARM IN AREA 4
1099 = WATER ALARM IN AREA 5
1100 = WATER ALARM IN AREA 6
1101 = WATER ALARM IN AREA 7
1102 = WATER ALARM IN AREA 8
1103 = ANY ALARM IN AREA 1
1104 = ANY ALARM IN AREA 2
1105 = ANY ALARM IN AREA 3
1106 = ANY ALARM IN AREA 4
1107 = ANY ALARM IN AREA 5
1108 = ANY ALARM IN AREA 6
1109 = ANY ALARM IN AREA 7
1110 = ANY ALARM IN AREA 8
1111 = CODE LOCKOUT, ANY KEYPAD
1112 = KEYPAD 01 CODE-LOCKOUT
1113 = KEYPAD 02 CODE-LOCKOUT
1114 = KEYPAD 03 CODE-LOCKOUT
1115 = KEYPAD 04 CODE-LOCKOUT
1116 = KEYPAD 05 CODE-LOCKOUT
1117 = KEYPAD 06 CODE-LOCKOUT
1118 = KEYPAD 07 CODE-LOCKOUT
1119 = KEYPAD 08 CODE-LOCKOUT
1120 = KEYPAD 09 CODE-LOCKOUT
1121 = KEYPAD 10 CODE-LOCKOUT
1122 = KEYPAD 11 CODE-LOCKOUT
1123 = KEYPAD 12 CODE-LOCKOUT
1124 = KEYPAD 13 CODE-LOCKOUT
1125 = KEYPAD 14 CODE-LOCKOUT
1126 = KEYPAD 15 CODE-LOCKOUT
1127 = KEYPAD 16 CODE-LOCKOUT
1128 = FIRE TROUBLE, ANY ZONE
1129 = BURGLAR TROUBLE, ANY ZONE
1130 = FAIL TO COMMUNICATE TROUBLE
1131 = RF SENSOR LOW BATTERY TROUBLE
1132 = LOST ANC MODULE TROUBLE
1133 = LOST KEYPAD TROUBLE
1134 = LOST INPUT EXPANDER TROUBLE
1135 = LOST OUTPUT EXPANDER TROUBLE

1136 = EEPROM MEMORY ERROR TROUBLE
1137 = FLASH MEMORY ERROR TROUBLE
1138 = AC FAILURE TROUBLE
1139 = CONTROL LOW BATTERY TROUBLE
1140 = CONTROL OVER CURRENT TROUBLE
1141 = EXPANSION MODULE TROUBLE
1142 = OUTPUT 2 SUPERVISORY TROUBLE
1143 = TELEPHONE LINE FAULT TROUBLE1
144 = RESTORE FIRE ZONE
1145 = RESTORE FIRE SUPERVISORY ZONE
1146 = RESTORE BURGLAR ZONE
1147 = RESTORE MEDICAL ZONE
1148 = RESTORE POLICE ZONE
1149 = RESTORE AUX1 24 HR ZONE
1150 = RESTORE AUX2 24 HR ZONE
1151 = RESTORE CO ZONE
1152 = RESTORE EMERGENCY ZONE
1153 = RESTORE FREEZE ZONE
1154 = RESTORE GAS ZONE
1155 = RESTORE HEAT ZONE
1156 = RESTORE WATER ZONE
1157 = COMMUNICATION FAIL RESTORE
1158 = AC FAIL RESTORE
1159 = LOW BATTERY RESTORE
1160 = CONTROL OVER CURRENT RESTORE
1161 = EXPANSION MODULE RESTORE
1162 = OUTPUT2 RESTORE
1163 = TELEPHONE LINE RESTORE
1164 = ALARM MEMORY, ANY AREA
1165 = ALARM MEMORY, AREA 1
1166 = ALARM MEMORY, AREA 2
1167 = ALARM MEMORY, AREA 3
1168 = ALARM MEMORY, AREA 4
1169 = ALARM MEMORY, AREA 5
1170 = ALARM MEMORY, AREA 6
1171 = ALARM MEMORY, AREA 7
1172 = ALARM MEMORY, AREA 8
1173 = AREA ARMED
1174 = AREA DISARMED
1175 = AREA 1 ARM STATE
1176 = AREA 2 ARM STATE
1177 = AREA 3 ARM STATE
1178 = AREA 4 ARM STATE
1179 = AREA 5 ARM STATE
1180 = AREA 6 ARM STATE
1181 = AREA 7 ARM STATE
1182 = AREA 8 ARM STATE
1183 = AREA 1 IS ARMED AWAY
1184 = AREA 2 IS ARMED AWAY
1185 = AREA 3 IS ARMED AWAY
1186 = AREA 4 IS ARMED AWAY
1187 = AREA 5 IS ARMED AWAY
1188 = AREA 6 IS ARMED AWAY
1189 = AREA 7 IS ARMED AWAY
1190 = AREA 8 IS ARMED AWAY
1191 = AREA 1 IS ARMED STAY
1192 = AREA 2 IS ARMED STAY
1193 = AREA 3 IS ARMED STAY
1194 = AREA 4 IS ARMED STAY
1195 = AREA 5 IS ARMED STAY
1196 = AREA 6 IS ARMED STAY
1197 = AREA 7 IS ARMED STAY
1198 = AREA 8 IS ARMED STAY
1199 = AREA 1 IS ARMED STAY INSTANT
1200 = AREA 2 IS ARMED STAY INSTANT
1201 = AREA 3 IS ARMED STAY INSTANT
1202 = AREA 4 IS ARMED STAY INSTANT
1203 = AREA 5 IS ARMED STAY INSTANT
1204 = AREA 6 IS ARMED STAY INSTANT
1205 = AREA 7 IS ARMED STAY INSTANT
1206 = AREA 8 IS ARMED STAY INSTANT
1207 = AREA 1 IS ARMED NIGHT
1208 = AREA 2 IS ARMED NIGHT
1209 = AREA 3 IS ARMED NIGHT
1210 = AREA 4 IS ARMED NIGHT
1211 = AREA 5 IS ARMED NIGHT
1212 = AREA 6 IS ARMED NIGHT
1213 = AREA 7 IS ARMED NIGHT
1214 = AREA 8 IS ARMED NIGHT
1215 = AREA 1 IS ARMED NIGHT INSTANT
1216 = AREA 2 IS ARMED NIGHT INSTANT
1217 = AREA 3 IS ARMED NIGHT INSTANT
1218 = AREA 4 IS ARMED NIGHT INSTANT
1219 = AREA 5 IS ARMED NIGHT INSTANT
1220 = AREA 6 IS ARMED NIGHT INSTANT
1221 = AREA 7 IS ARMED NIGHT INSTANT
1222 = AREA 8 IS ARMED NIGHT INSTANT
1223 = AREA 1 IS ARMED VACATION
1224 = AREA 2 IS ARMED VACATION
1225 = AREA 3 IS ARMED VACATION
1226 = AREA 4 IS ARMED VACATION
1227 = AREA 5 IS ARMED VACATION
1228 = AREA 6 IS ARMED VACATION
1229 = AREA 7 IS ARMED VACATION
1230 = AREA 8 IS ARMED VACATION
1231 = AREA 1 IS FORCE ARMED
1232 = AREA 2 IS FORCE ARMED
1233 = AREA 3 IS FORCE ARMED
1234 = AREA 4 IS FORCE ARMED
1235 = AREA 5 IS FORCE ARMED
1236 = AREA 6 IS FORCE ARMED
1237 = AREA 7 IS FORCE ARMED
1238 = AREA 8 IS FORCE ARMED
1239 = ZONE BYPASSED
1240 = ZONE UNBYPASSED
1241 = ANY BURGLAR ZONE IS FAULTED
1242 = BURGLAR STATUS OF ALL AREAS
1243 = AREA 1 BURGLAR STATUS
1244 = AREA 2 BURGLAR STATUS
1245 = AREA 3 BURGLAR STATUS
1246 = AREA 4 BURGLAR STATUS
1247 = AREA 5 BURGLAR STATUS
1248 = AREA 6 BURGLAR STATUS
1249 = AREA 7 BURGLAR STATUS
1250 = AREA 8 BURGLAR STATUS
1251 = AREA 1 CHIME MODE
1252 = AREA 2 CHIME MODE
1253 = AREA 3 CHIME MODE
1254 = AREA 4 CHIME MODE
1255 = AREA 5 CHIME MODE
1256 = AREA 6 CHIME MODE
1257 = AREA 7 CHIME MODE
1258 = AREA 8 CHIME MODE
1259 = AREA 1 CHIME ALERT
1260 = AREA 2 CHIME ALERT
1261 = AREA 3 CHIME ALERT
1262 = AREA 4 CHIME ALERT
1263 = AREA 5 CHIME ALERT
1264 = AREA 6 CHIME ALERT
1265 = AREA 7 CHIME ALERT
1266 = AREA 8 CHIME ALERT
1267 = ENTRY DELAY, ANY AREA
1268 = AREA 1 ENTRY DELAY
1269 = AREA 2 ENTRY DELAY
1270 = AREA 3 ENTRY DELAY
1271 = AREA 4 ENTRY DELAY
1272 = AREA 5 ENTRY DELAY
1273 = AREA 6 ENTRY DELAY
1274 = AREA 7 ENTRY DELAY
1275 = AREA 8 ENTRY DELAY

1276 = EXIT DELAY, ANY AREA
1277 = AREA 1 EXIT DELAY
1278 = AREA 2 EXIT DELAY
1279 = AREA 3 EXIT DELAY
1280 = AREA 4 EXIT DELAY
1281 = AREA 5 EXIT DELAY
1282 = AREA 6 EXIT DELAY
1283 = AREA 7 EXIT DELAY
1284 = AREA 8 EXIT DELAY
1285 = AREA 1 EXIT DELAY ENDS
1286 = AREA 2 EXIT DELAY ENDS
1287 = AREA 3 EXIT DELAY ENDS
1288 = AREA 4 EXIT DELAY ENDS
1289 = AREA 5 EXIT DELAY ENDS
1290 = AREA 6 EXIT DELAY ENDS
1292 = AREA 8 EXIT DELAY ENDS
1293 = AUTOMATIC CLOSING
1294 = EARLY CLOSING
1295 = CLOSING TIME EXTENDED
1296 = FAIL TO CLOSE
1297 = LATE TO CLOSE
1298 = KEYSWITCH CLOSING
1299 = DURESS
1300 = EXCEPTION OPENING
1301 = EARLY OPENING
1302 = FAIL TO OPEN
1303 = LATE TO OPEN
1304 = KEYSWITCH OPENING
1305 = AREA 1 CLOSING RING BACK
1306 = AREA 2 CLOSING RING BACK
1307 = AREA 3 CLOSING RING BACK
1308 = AREA 4 CLOSING RING BACK
1309 = AREA 5 CLOSING RING BACK
1310 = AREA 6 CLOSING RING BACK
1311 = AREA 7 CLOSING RING BACK
1312 = AREA 8 CLOSING RING BACK
1313 = ACCESS KEYPAD 01
1314 = ACCESS KEYPAD 02
1315 = ACCESS KEYPAD 03
1316 = ACCESS KEYPAD 04
1317 = ACCESS KEYPAD 05
1318 = ACCESS KEYPAD 06
1319 = ACCESS KEYPAD 07
1321 = ACCESS KEYPAD 09
1322 = ACCESS KEYPAD 10
1323 = ACCESS KEYPAD 11
1324 = ACCESS KEYPAD 12
1325 = ACCESS KEYPAD 13
1326 = ACCESS KEYPAD 14
1327 = ACCESS KEYPAD 15
1328 = ACCESS KEYPAD 16
1329 = ACCESS ANY KEYPAD
1330 = BEEP AREA 1 KEYPAD(S)
1331 = BEEP AREA 2 KEYPAD(S)
1332 = BEEP AREA 3 KEYPAD(S)
1333 = BEEP AREA 4 KEYPAD(S)
1334 = BEEP AREA 5 KEYPAD(S)
1335 = BEEP AREA 6 KEYPAD(S)
1336 = BEEP AREA 7 KEYPAD(S)
1337 = BEEP AREA 8 KEYPAD(S)
1338 = AREA 1 EXIT ERROR
1339 = AREA 2 EXIT ERROR
1340 = AREA 3 EXIT ERROR
1341 = AREA 4 EXIT ERROR
1342 = AREA 5 EXIT ERROR
1343 = AREA 6 EXIT ERROR
1344 = AREA 7 EXIT ERROR
1345 = AREA 8 EXIT ERROR
1346 = AUDIO AMPLIFIER STATUS
1347 = CONTROL POWER STATUS
1348 = LIGHT
1349 = DARK
1350 = SECURITY (DAY) ALERT
1351 = DIALER ABORT
1352 = DIALER CANCEL
1353 = DIALER AUTO TEST
1354 = LOCAL PROGRAMMING
1355 = LOCAL PROGRAMMING ENDS
1356 = KEYSWITCH ZN TAMPER ALERT
1357 = EVENT LOG, 80% FULL
1358 = TELEPHONE LINE IS RINGING
1359 = TELEPHONE LINE SEIZE
1360 = TELEPHONE LINE OFF/ON HOOK
1361 = TELEPHONE LOCAL ACCESS
1362 = TELEPHONE REMOTE ACCESS
1363 = REMOTE PROGRAMMING
1364 = REMOTE PROGRAMMING ENDS
1365 = AC FAIL TBL - POWER SUPV ZN
1366 = LOW BATTERY TBL - POWER SUPV ZN
1367 = SYSTEM START UP
1368 = CONTROL LOW VOLTAGE SHUTDOWN
1369 = RF KEYFOB BUTTON 1
1370 = RF KEYFOB BUTTON 2
1371 = RF KEYFOB BUTTON 3
1372 = RF KEYFOB BUTTON 4
1373 = RF KEYFOB BUTTON 5
1374 = RF KEYFOB BUTTON 6
1375 = RF KEYFOB BUTTON 7
1376 = RF KEYFOB BUTTON 8
1377 = LOST SERIAL PORT EXPANDER TROUBLE
1378 = RULE TRIGGERED VOICE TELEPHONE DIAL
1379 = DIALER REPORT CLEARED
1380 = CENTRAL STATION KISSOFF
1381 = TRANSMITTER SUPERVISION LOSS
1382 = 2-WIRE SMOKE DET. CLEAN TRBL
1383 = ETHERNET TROUBLE
1384 = ETHERNET RESTORE
1385 = RESTORE REMOTE AC POWER
1386 = RESTORE REMOTE BATTERY
2001-2032 = Automation Tasks
3001 = F1 Key, keypad 1
3002 = F2 Key, keypad 1
3003 = F3 Key, keypad 1
3004 = F4 Key, keypad 1
3005 = F5 Key, keypad 1
3006 = F6 Key, keypad 1
…
3091 = F1 Key, keypad 16
3092 = F2 Key, keypad 16
3093 = F3 Key, keypad 16
3094 = F4 Key, keypad 16
3095 = F5 Key, keypad 16
3096 = F6 Key, keypad 16
4001 – 4208 = Zone status, normal = 0, violated = 1
5001 – 5208 = Zone bypassed, 1 = bypassed
6001 – 6208 = Alarm Memory, 1 = alarm activated
7001 – 7208 = Output status, 1 = On

9. Calculate Checksum

Calculate checksum on received and transmitted ASCII string
Example C code program

```
//INT8U  is an 8 bit unsigned integer.
INT8U itAscRecBuf[82];                  //ASCII receive
character buffer
INT8U AscHexToBin(INT8U, INT8U *); //ASCII hex to binary
conversion
INT8U AsciiToHex( INT8U);       //Ascii to Hex conversion


//Calculate checksum on a received ASCII string, return checksum
value. //It should equal 0 if good.
INT8U CalcCheckSum(void)
{
        INT8U i,length, cc;

        length = AscHexToBin(2, &itAscRecBuf[0]);
//get length value,
                                        //first two characters

        cc = AscHexToBin(2, &itAscRecBuf[length]);  //get
checksum value
                                        //at end of string.
        for (i=0;i<length ;i++ )
        {
                cc += itAscRecBuf[i]; //get string value and
add it to
         //checksum
        }
        return(cc);             //good checksum should equal 0
}

//ascii hex to binary, width 1 or 2
INT8U AscHexToBin(INT8U Width, INT8U * DataPtr)          //
{
        INT8U aVal;  // accumulated value

        aVal = AsciiToHex(*DataPtr);
        DataPtr++;
        if (Width == 2)//two digits wide, else 1 digit wide
        {
                aVal = aVal << 4;
                aVal += AsciiToHex(*DataPtr);
        }
        return(aVal);
}

//Ascii to Hex conversion
INT8U AsciiToHex( INT8U Value )
{
        switch ( Value )
        {
                case 'A':
                        return( 10 );
                case 'B':
                        return( 11 );
                case 'C':
                        return( 12 );
                case 'D':
                        return( 13 );
                case 'E':
                        return( 14 );
                case 'F':
                        return( 15 );
                default:
                        return( Value - 0x30 );
        }
}

/*
*************************************************
*******
To generate the checksum for an ASCII string to be transmitted,
clear the checksum value (CC = 0;)
Add each byte of the string to be transmitted to the checksum value
(CC += ASCII byte).
Do a two's compliment of the checksum (CC = (CC ^ 0xff) + 1;).
Convert the checksum's upper and lower nibble's to ASCII hex.
Send a carriage return (0x0D) and line feed (0x0A).
The following is an example C code for sending the checksum after
building the initial checksum value.

*/
//send checksum + carriage return, line feed
//Comm2_Put_Ch() sends the byte out the serial data port.

INT8U NibToAsc(INT8U);

void SendChecksum(INT8U CC) //enter with checksum value
added up
{
        CC = (CC ^ 0xFF) + 1; //calculate two's compliment
        Comm2_Put_Ch(NibToAsc(CC >> 4));
        Comm2_Put_Ch(NibToAsc(CC & 0x0F));
        Comm2_Put_Ch(0x0D);
        Comm2_Put_Ch(0x0A);
}

INT8U NibToAsc(INT8U Nib)
{
        if (Nib < 0x0A)
                return( (INT8U)(Nib + 0x30));
        else if (Nib <= 0x0F)
                return(Nib + 0x37); //converts to 0x0A ->
0x0F hex value
        return(0x20); //error
}
```

10. Contact Information:

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